American Fruit Grower Magazine for December

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Is Your Spraying Equipment Adequate for Your Job?

EVIDENCE IS NOT LACKING that there is a greater degree of building activity on the fruit farms at the present time than has existed for many years. Higher price levels for fruits has put the average grower in a favorable financial position in spite of the relatively smaller crops. The average grower seems to be trying to bring his buildings up to date.

Storages lead in new construction planned and under way, with dwelling houses second, in the proportion of about three to two, according to the results of a recent market survey made by the Market Research Department of AMERICAN FRUIT GROWER MAGAZINE.

While this degree of activity in building construction is highly gratifying, the forward-looking grower will at this time make a special study of his equipment, especially of the machinery used in the control of insects and diseases.

Reports from the principal commercial fruit sections indicate that there are far too many growers using inadequate spraying machinery. This inadequacy was fully reflected in the appearances of the 1929 apple crop in the terminal markets.

Sober reflection will convince anyone that equipment that was eminently adapted to the job in hand five years ago was woefully lacking in ability to cover the needs of the past year.

Four years of normal vegetative growth alone, making due allowance for pruning, adds heavily to the leaf surface to be covered. The increasing severity of insect and disease attacks puts an added burden on the old equipment, a burden ofttimes far greater than it can carry. The result is that many orchards that produced clean fruit a few years ago are now turning lower grades onto the market.

The problem of fruit farm equipment will receive close attention this winter. Many will wisely invest in sprayers of greater capacity, or in a duster for greater summer coverage. Others will install stationary plants in the realization that the resultant increase in clean fruit in a single crop may wipe out the cost of the investment.

Among the growers with smaller plantings and with diversified crops, the power orchard-and-crop sprayers are arousing a high degree of interest, for it is not alone fruit crop pests that have multiplied. Humanity appears to have entered a warfare with the insect kingdom for possession of the food supply.

That insects and plant diseases *can* be controlled is evidenced by the fact that in many orchards they *are* controlled, though at a price. The price in these outstanding cases is, primarily, adequate equipment, coupled, of course, with the most effective materials and intelligent application.

The fruit grower who plans to remain in business and to operate at a profit must devote some searching study to the matter of his equipment. A rule may well be borrowed from the bridge builder, that the construction must be able to carry the heaviest possible load and have an additional margin of safety. It is not a paradox that machinery just sufficient for a job is insufficient. It is a cold, practical fact.

During the next few months there will be abundant time for close study of the merits of various sprayers and dusters. Time thus spent will be time well invested.

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MENTAL SEEDS

AS YOU turn the pages of this magazine, dozens of seeds are implanted in your mind . . . That's a good-looking car . . . The old sprayer doesn't seem to be equal to the job; should have taken a chance last spring and bought one with more power . . . I'd better send for these booklets . . . Can I afford to buy a truck this season? . . . Can I afford not to? . . . Wonder how much sheet insulation it would take to fix up a fruit storage in the barn, or implement house or cellar. Better find out, here's a handy coupon . . . H'm, a new sulphur dust, worth looking into . . . Better oil sprays at lower cost . . . Yellow apples . . . they seem to be bringing good prices.

Some of the advertisements may not interest you at this time. Others will take root in your mind and bear fruit in some satisfactory purchase.

For advertisements are mental seeds that yield a crop of satisfaction. Stop and reflect a bit. Did you *ever* make a purchase from an advertisement in a responsible journal that was not a source of satisfaction to you? What is your experience with the general run of products that for some reason or other are not advertised? Something like "v o l u n t e e r" crops? They *may* turn out fairly good, sometimes, but . . .

Furthermore, these advertisements stimulate your interest in products and appliances that save labor, time and money. They help you to keep in step with progress in your business.

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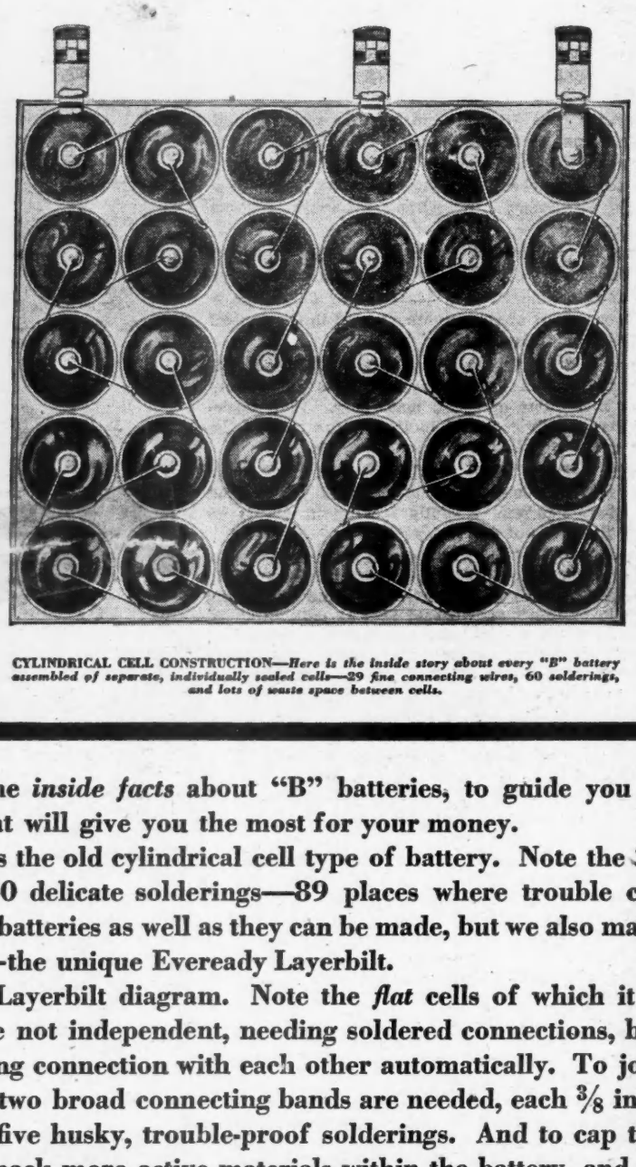
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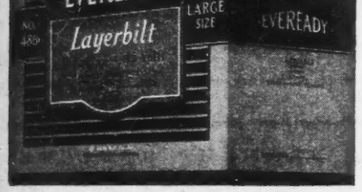
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CYLINDRICAL CELL CONSTRUCTION—*Here is the inside story about every "B" battery assembled of separate, individually sealed cells—29 fine connecting wires, 60 solderings, and lots of waste space between cells.*

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Eveready Batteries are being used in automatic train control, aircraft beacon receivers, talking motion pictures, short wave transmission, picture transmission, television; for the protection of life and property and to secure instant, unfailing, noiseless, perfect electrical power.



This is the LARGE SIZE Eveready Layerbilt "B" Battery for heavy duty, No. 486, the longest lasting, most economical of all Eveready's. Price $4.25. There is also another Eveready Layerbilt, Medium Size, No. 485, at $2.95.

HERE are revealed the *inside facts* about "B" batteries, to guide you in selecting the ones that will give you the most for your money.

One diagram shows the old cylindrical cell type of battery. Note the 29 fine wires, and the 60 delicate solderings—89 places where trouble can come. We make such batteries as well as they can be made, but we also make a much better kind—the unique Eveready Layerbilt.

See the Eveready Layerbilt diagram. Note the *flat* cells of which it is built. Those cells are not independent, needing soldered connections, but *inter*dependent, making connection with each other automatically. To join the two sections, but two broad connecting bands are needed, each 3/8 inch wide. There are but five husky, trouble-proof solderings. And to cap the climax, the flat cells pack more active materials within the battery, and so you get longer life, greater convenience and economy.

Eveready Layerbilts are the best batteries made, and no other battery is like them. You can make "B" batteries out of separate cells of any shape you choose, and still you cannot imitate the Eveready Layerbilt. It is patented, and exclusive with us; our invention, and *your* advantage in economy, convenience and satisfaction. Be sure you get Eveready Layerbilts. Look for the name printed large on the label.

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TUESDAY NIGHT IS EVEREADY HOUR NIGHT—*East of the Rockies*—9 P. M. Eastern Standard Time, through WEAF and associated N. B. C. stations. *On the Pacific Coast*, 6 P. M. Pacific Standard Time, through N. B. C. Pacific Coast network.

NEW EVEREADY RADIO RECEIVERS, A. C. AND BATTERY OPERATED, NOW ON SALE

"On Their Way Home--Toward Meal Time"

Fruit Buying Customs of the Transient or Casual Trader as Observed by an Operator of an "Independent" Fruit and Vegetable Store in a Metropolitan Retail Trade Center. The First of the "Stories of the Retail Fruit Markets."

By B. A. TANNENBAUM



There are two objects in the arrangement of every piece of store equipment; to display fruits and vegetables to best advantage, and to sell them.

ONE OF OUR display windows is filled to a height of about two feet with apples; brightly colored Northwest Jonathans, Grimes Golden from nearby States and Greenings from New York and Pennsylvania. Fiber-board divisions keep the piles separate and give the effect, from the street, of wide verticle bands of red, yellow and green apples against the glass. During the apple season, from October to March, we find this an effective display. The sign above the apples reads: "3 LBS.—25c." The combination of apples and price brings many into the store, as a window display should.

Upon entering, the customer finds himself faced, from the opposite side of the store, 20 feet distant, by high, sloping banks of Northwest boxed apples, all high-grade fruit. There are Jonathans at three pounds for 35 cents, Delicious at a nickel apiece, and Rome Beautys (Skookums) at two pounds for a quarter, to mention a few.

The customer usually says, "Give me three pounds of apples," and seven times out of eight selects the apples displayed in the window.

Seven to One, While They Last

AT THESE PRICES, the apples in the window represent more food value for the money than do the boxed apples. They are seconds, C grade and bulk stock. Each apple has some blemish, bruise or the like that disqualifies it from the A grade without seriously lowering its food value. Throughout the fall this stock is in fairly free supply on the South Water Market at from under a dollar to as much as $1.50 a bushel, depending on the apple supply.

In this class of stock are such box packs as the Idaho "combination pack" marked "Extra Fancy, Fancy and C grade." Such a pack will contain possibly four extra fancy, perhaps 10 fancy and the rest C grade. Piled in the window, their color sells them. But there is little sale for the A grade fruit while they last, except to the auto trade, by the box.

We have, in our back room, 10 boxes of fancy apples, enough to last the remaining five days of the week. Some will probably go out in autos; the rest will supply our retail sales. But our truck will bring another load from the Market to make up the probable 70 bushels of apples of the grades in the window we will sell by Saturday night.

By this time you have probably figured the amount received for a bushel of apples in small retail sales.

The Price-Weight Feature

"THREE POUNDS for a quarter" is a popular price for many items, including apples. Ten cents a pound is still more popular, as a price. But it is difficult to "build up" a 10-cent sale, while an initial purchase of 25 cents can be increased to an average total purchase of a trifle over 60 cents by judicious salesmanship.

The weight? Well, it's curious. Except on Saturdays, the casual customer, the transient, is likely to pass up a five-pound offer, however attractively priced, because it is more than he likes to carry. Offer him a four-pound special and he is apt to buy two pounds and resist any increase in his purchase. Three pounds is not a heavy package to carry. He will buy three pounds.

The three pounds of apples are weighed into a sack somewhat too large, the open top casually tilted toward the buyer, who gazes into the space still to be filled, while a pleasantly suggestive "a-n-d—?" voiced with a rising inflection, encourages him to fill the sack. Thus, the average casual or transient buyer who would balk at buying four pounds of anything, will go away with an average weight of seven pounds of fruits or vegetables or both and will have spent just over 60 cents. Perhaps he will have taken five pounds of potatoes in addition to his purchase of apples.

But he has bought three pounds of apples, out of the piles in the window, and has paid a quarter for them. He will seven times out of eight continue to buy them until they give out along toward Thanksgiving. They won't keep, and their season is limited. When storage stocks of fancy fruit take their place, we will move a hundred boxes a week—mostly at three pounds for a quarter.

Clean, Graded Fruit Stimulates Demand

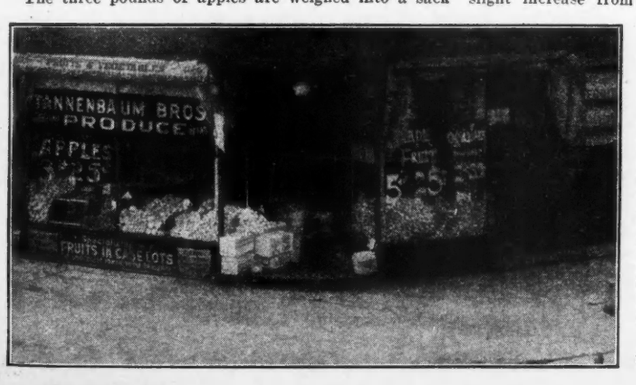
PROPERLY managed and with experienced retail clerks, a fruit and vegetable store can prosper on a profit margin of one-third of the selling price. But there is a popular price-weight which it is seldom practical to alter, for reasons explained. The lower grades of salable apples are gratefully received, featured and sold. No retailer can complain.

But if the apple growers (growers of all other fruits, and of vegetables as well) could see the undergrades from the viewpoint of the retail market, they would turn into by-products of some kind all but the high-grade stock.

Florida, some years ago, tried the same idea of sending bulk cars of undergrade oranges to the Market here. We sold them at a nice profit, while the sale of better grades suffered. Now that bulk oranges are not to be had, the better grades of Floridas, particularly the "Seald-Sweets," a beautiful uniform pack, are sold freely all season.

Seven men and women out of eight do not readily distinguish between grades of fruit except as to size and color, though there is a slight but noticeable increase each year in the number who discriminate in favor of fancy apples. To transient purchasers, bulk stock, seconds and the like, while they last, sell about four-fifths as freely and for just about the same price as will be asked for the clean fruit, when the bulk stock is sold out.

But while the demand for apples shows a slight decrease from week to week while the undergrades are featured, apple sales pick up and show a corresponding slight increase from week to week when only clean, sound fruit is displayed.



Catering to the "Transient" Trade

WE, my brother and I, operate a fruit and vegetable store in "Uptown Broadway," an important retail center six miles north of the "loop," three miles south from the north city limits and a few blocks from Lake Michigan. Our customers are the people who throng the sidewalks, always a multitude in an important retail and transportation center. Our principal trade is transacted with them when they are on their way home toward meal-time.

Perhaps 35 per cent of our trade is with housekeepers living in apartments to the west. Then there is a respectable number who want the unusual in fruits and vegetables: hot-house vegetables, native ripe figs, dates, olives, pomegranates, kumquats, pawpaws; for we sell every fruit and vegetable in season for which a demand exists, mostly in mixed lots of about seven pounds. Our average daily turnover is about a ton and three quarters.



All but the space necessary for customers' and clerks' use is utilized for display counters, bins, banks and shelves. Fruits and vegetables in greatest demand are so grouped together as to display them to best advantage, thus stimulating their sale.

We were brought up in the grocery business. Father spent his life in the business and we clerked for him. The retail grocery business was, even 15 years ago, seeing breakers ahead, in the development of the chain-store system. But the "green grocery" business, as it was then termed, presented attractions. After some study, we decided there was as stable a future ahead for the expert retail handler of perishables as existed anywhere in the retail food trade.

A Mixed Wholesale and Retail Business

THE LOCATION of our first store was carefully selected in a west side retail business center close to an elevated railway terminal. We wanted the transient trade, the casual buyer. This trade consists of the men and women homeward bound from work and hungry, housekeepers on their return from shopping downtown and that portion of the thousands of pedestrians who are always influenced by an attractive window display of something good to eat.

To augment the profits of our retail venture, we solicited and built up a wholesale business of some 20 grocery stores that we kept supplied daily with their requirements in fresh fruits and vegetables.

During the eight years in the first location we did well. But the growth of population in that direction began to slow down on account of inadequate transportation as compared with other sections of Chicago and we appeared to be reaching a limit of daily sales beyond which business came with difficulty.

Further extension of the chain-store system closed so many independent retail grocery stores that our wholesale business fell off alarmingly.

Selecting a New Location

WE PICKED the present location after spending some time "sizing up" the crowds of people passing various corners during the trade hours and rush hours. Some of the reasons influencing our choice of this location might be mentioned. It is in the center of a retail shopping district, deriving its trade (*To Page* 21)



This Wealthy orchard, with its half-mile-long rows, was profitable, until the public tired of Wealthys.

This is how it appears three years after being top-worked over to R. I. Greenings.

NEW VARIETIES for OLD

Productive Orchards, Planted to Varieties No Longer Popular, May Be Top-Grafted to More Profitable Varieties, at Inconsiderable Expense and Time.

By H. D. HOOTMAN

Michigan State College

PART I.

GRAFTING is not necessarily boy's play, but it can be made a real he-man's job. Many commercial fruit growers are often inclined to think lightly of the whole operation, regarding it as a novelty to be trifled with by the amateur. Some have tried it in more or less of a purposeful way with varying degrees of success. Others smile, revealing their intention to start over by making new plantings of the desired varieties. Experience has shown, however, that old, undesirable varieties may be exchanged for the newer and better. The old orchard may possess a surprising "turn-in" value.

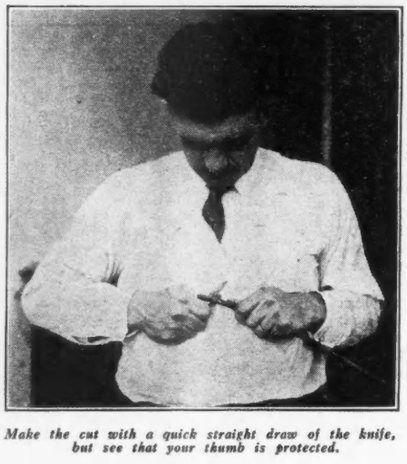
Why Trees May Need Grafting

CHANGES in market preferences and misnamed nursery stock are two important reasons for top-grafting. Provision for satisfactory cross-pollination often makes it advisable to graft over three or four trees on each acre to a good pollinizer in apple orchards that have been planted to one variety. A supply of favorite varieties for home use can also be provided by grafting several varieties into one tree.

The purpose of this article is to aid those readers of AMERICAN FRUIT GROWER MAGAZINE who have a real grafting job confronting them. The first requisite is that the grower must have a real desire or urge to graft, otherwise poor results may make him regard the undertaking as a bad joke. They must be willing to see the job completed by devoting several days in the spring to grafting work.

Unless a man enjoys grafting or has had enough grafting experience so that he can work at it rapidly, he will likely begrudge the time devoted to it, especially if he feels that he should be pruning, picking up brush or overhauling the sprayer. He must have the right frame of mind towards the work—then with intelligent effort, good tools and good scion wood, there is every reason to believe that he will succeed.

It is the writer's belief that if more fruit growers knew exactly the importance of using good scion wood and time-saving methods, they would find greater enjoyment in grafting. They would not only become better grafters, but would escape many of the pitfalls that have caused failure.



Make the cut with a quick straight draw of the knife, but see that your thumb is protected.

History does not definitely record when grafting originated, and although it was practiced several hundred years before the Christian era by Roman horticulturists, the technique followed by various operators still remains as unstandardized as guest room towels. The merit of any method should be determined by the speed with which it can be executed and the growth which the scions make.

Scion Wood

IT PAYS big dividends to be cranky in the selection and care of scion wood. There is scion wood and *scion wood.* The ideal wood for good work is mature, well-ripened wood, about the size of a lead pencil, cut from the past season's growth. Good scion wood can generally be gathered from the outer upper branches of vigorous young trees. In the older bearing orchards it is generally hard to find such wood on the terminal branches; however, "water sprouts" often found in the center of such trees can be used with good results.

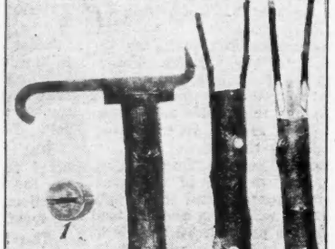
While scion wood usually grows if taken any time before growth starts, better results will be obtained if it is gathered before exposed to severe freezing temperatures. It should be tied in small bundles for ease in handling and stored, safe from rodents, in a cool damp place.

Packing it in damp moss and placing in a cold or air-cooled storage house is an ideal way to keep it. Burying it in the sawdust, next to the ice, in an ice house, is another satisfactory way. Still another convenient, safe, simple and satisfactory way is to bury it in the ground in a well drained spot on the north side of a building. Scion wood that has been cared for this way will be fresh, moist and will have a green or white pith when used. When exposed to low winter temperatures, the wood is often dry, with a yellow or orange-colored pith, indicating winter injury.

An abundance of wood should be gathered so that only the lower half of each scion stick need be used. The proportion of pith to wood increases rapidly in the upper half of the scion stick. Scions cut from this upper portion seldom make a vigorous growth. The selection of scion wood becomes of increasing importance if the wood has been exposed to low temperatures.

Cutting the Scion

THE SCION is cut from a portion of the previous season's growth, usually of such length as to include three buds. The lower end of the scion is cut wedge shape, the surfaces being about one inch to one and one-quarter inches long. The side that is to face out should be a little wider. It is advisable to cut the scion so that the lower bud will be on the outside near the end of the stock.



1. *Cross section of cleft, scions in position. (Be sure the cambium layers are in contact.)*
2. *Splitting the stock with a grafting chisel.*
3. *The scions in the correct position.*
4. *Part of stock cut away to show position of scions. (After W. H. Alderman.)*

It should be the aim of the operator to cut the scion with just two draws of the knife. The surface of the wedge should not be left rough by paring. Cut it with a single draw. A sharp, thin-bladed knife that will hold an edge is essential (*To Page* 20)

Apple Varieties and Apple Profits

In Planting New Orchards Care Should Be Taken to Select Such Varieties as Can Be Produced to the Height of Perfection in the Chosen Locality.

By RALPH W. REES

Horticultural Agent, New York Central Lines

THIS ARTICLE is in no way a technical discussion of regional variation in apple varieties. It is the purpose, however, to point out some of the variations which do occur in a few of the more important varieties when produced in different sections of the country; also to point out the effect of these variations on the commercial value or probable profit to be obtained from their production.

Anyone who has traveled extensively through the commercial apple sections of the country, or who has been more than a casual observer at the important fruit shows, or who visits large city fruit markets, well knows the range in size, form, color and finish of the Jonathan, Delicious, McIntosh or the Baldwin as produced in different sections. The variation in characters, such as size, form, color, finish, texture, flavor and keeping qualities, may be due to many factors. Among these factors are soil, moisture supply, the amount and intensity of sunshine and other climatic conditions as affected by latitude and altitude.

There is much variation in a given variety from individual trees in one locality or in quality of a variety in different orchards in the same locality or district, yet there is a more or less predominating type or set of characteristics to be found in the fruit from any section. Western New York produces more Baldwin apples than any other section. In this district the Baldwin ranges from medium to large in size for the variety, averages pale to dull red in color and borders on a coarseness in texture but is of good flavor and excellent keeping quality. The Baldwin from the lighter soils of the Hudson Valley or New England averages a much brighter red and a more attractive finish but is usually of poorer storage quality. The same variety grown as far south as West Virginia or Virginia, is usually much coarser, pale and of poor storage quality.

The McIntosh from the Lake Champlain or the Georgian Bay sections is of the very highest quality with a deep, even, cherry red color and splendid finish, texture, and flavor. The same variety from the lower altitudes of eastern Massachusetts, while of good quality, usually lacks the uniformity of finish and high color and is of a somewhat softer texture. In the Bitter Root Valley of Montana, the McIntosh is extensively grown and takes on a very deep dark red, sometimes too deep to be the most attractive, and the form is slightly less regular than in some sections.

Throughout the Pacific Northwest there is a variation in appearance of many varieties in the different districts and the experienced apple handler can frequently tell a Jonathan from Idaho from a Jonathan grown in the Yakima Valley or can distinguish a Spitzenburg produced in Hood River from one grown in Wenatchee. However, there is a characteristic appearance of the leading commercial varieties from the Northwest which makes them distinguishable from the same varieties produced elsewhere. This is due largely

to a uniformity of type, color and finish of the fruit.

Many costly mistakes have been made in selecting varieties for planting simply because they have a good appearance and bring good prices on the market. Too frequently little attention has been paid to whether or not these varieties can be grown to perfection in the particular locality where the orchard is to be situated. In nearly every apple district this has been true. In the Pacific Northwest, thousands of acres of apples were pulled out because the varieties planted did not produce the proper market qualities. In the eastern apple sections the same mistake has been made just as frequently but many of the orchards have remained. The nearness to market has made it possible to market the fruit at little loss, but the orchards have not been profitable because the fruit lacked size, color and finish. A variety is usually a failure when it does not develop the characteristics to meet competition from other varieties or from the same variety produced in other sections.

Jonathan and Ben Davis have often been planted beyond their northern limit and the undersized, poorly developed fruit cannot meet the competition from the larger, brighter fruit produced in sections more favorable to the varieties. The McIntosh has been planted too far south, where it fails to color properly and drops freely before reaching maturity. The Delicious has a very wide range of adaptability so far as the tree is concerned. In many cases it has been planted in sections where the fruit fails to make size or color to meet the market competition from more favorably located districts.

An apple orchard is a long time investment and varieties cannot be easily changed over. Great care must be taken to select varieties that can be produced locally to the height of perfection. Rapid transportation and adequate distribution bring apples from all sections of the country into competition so that the problem of right varieties is now more important than ever before. Our agricultural experiment stations, the variety testing associations and horticultural societies are doing much toward improving the recommended variety lists. Study these lists carefully and before planting any variety of apple, be sure that in your locality you can produce the type that will successfully meet competition from other sections.

At the joint meeting of the American Pomological Society with the Virginia Horticultural Society early in December will be shown plates of leading apple varieties as grown in various sections. A study of this exhibit should convince any apple grower of the importance of using utmost care in selection of varieties.

An Interesting and Instructive Exhibit Showing Regional Variations in Apple Varieties Will Be Shown at the Annual Meeting of the American Pomological Society at Roanoke, Va., December 3, 4 and 5. The Commercial Apple Producer Will Find Attendance at This Meeting to Be a Paying Investment.
See Announcement on Page 21 of This Issue.

DOUBLE-TIMING the SPRAY RIG

The Crop Losses from Scab in Commercial Apple Orchards This Season Were Sufficient, If Saved, to Have Re-Equipped Those Orchards with Modern Spraying Equipment of Adequate Capacity.

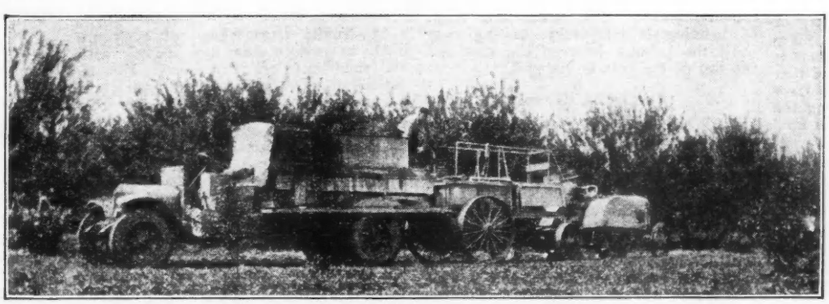
By A. L. PIERSTORFF
Ohio State University

SCAB, scab, scab!

That is the cry of the apple growers in the eastern United States this year. With the third smallest crop in 20 years at $3 per bushel, this is indeed a costly cry. "Well, if it rains next spring like it did this year, what are we going to do about it?" they are asking.

This is not an easy question to answer satisfactorily. However, the encouraging thing about this lament is that in practically every fruit locality there are individual growers who have a clean crop. Are they just lucky or is there a real reason for these outstanding examples? Scab was severe over a large area and the rains were general enough last season. One is therefore forced to conclude that the man must have had something to do with it.

There are at least a dozen examples in Ohio this year where individual growers—both large and small—have only one to five per cent of scabby fruit and their neighbors have from 50 to 90 per cent. Yes, even up to 99 per cent scabby fruit. These figures are based upon actual field counts. How did they do it? Two words are sufficient: *timeliness* and *thoroughness* in spraying.



The time saved in the W. W. Farnsworth orchards by filling the sprayer in the orchard, from a tank mounted on a truck, was manifested in the form of clean, profitable fruit, at harvest.

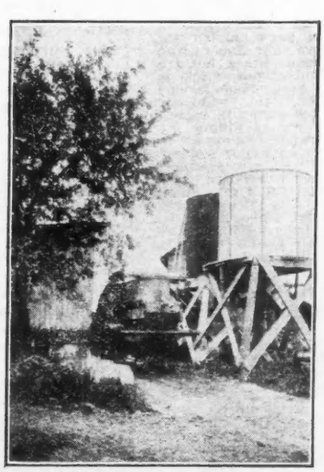
Preparedness Pays

LET US SEE how these men were able to spray, when as the layman says, it rained every day. In the first place, these growers had their scab fighting machinery organized to the *nth* degree. They not only had good spray rigs, but these rigs had been carefully overhauled and were of maximum capacity for the size of the orchard; their spray materials and water were conveniently located so they could fill in from three to five minutes. They had sufficient volume to supply their needs; they sprayed from 12 to 24 hours per day or sprayed during the daylight hours and dusted at night. Then another big factor was the elimination of the time necessary to go to and from the orchard and the water supply while handling water.

Let us take two examples of the last mentioned factor and see the saving effected. Both Mr. Taite of Delaware, Ohio, and the W. W. Farnsworth orchards of Waterville, Ohio, have their supply tanks located in their orchards. However, when spraying the back half of their orchards as much time was wasted in going to and from the supply tank as was spent in spraying. They decided to haul the water to the spray rigs instead of bringing the heavy rig to the supply tank. In each case the only investment required was the purchase of a galvanized water tank.

Mr. Taite's 200-gallon tank is mounted on top of his tractor, while Mr. Farnsworth's 300-gallon tank is mounted on a motor truck which formerly stood idle during much of the spray season. In the Taite orchard the truck hauls water to one spray rig in the back of the orchard while another rig is spraying close to the supply tank. Mr. Farnsworth's truck keeps two spray rigs supplied, one 300-gallon outfit and the other of 400 gallons capacity when the interval to and from the supply tank is more than five minutes.

Sufficient spray materials are brought with each truck load of water for one spray tank. By the time these materials are placed into the spray tank, it is filled with water by gravity from the truck or tractor tank and they start to spray where they left off. The spray rig engine is never stopped.



Storage tanks in the Farnsworth orchards fill the supply tank on the motor truck in a few moments' time.

Night Work Becoming Popular

MANY other growers are in a position to take advantage of this saving. Approximately twice as many acres can be sprayed in a day as by the old method. In addition to this, these men and many others run two shifts of men or even resort to night spraying. Mr. Farnsworth told the writer that one night he applied ten 400-gallon tanks of spray. Surely 4000 gallons of spray will help a lot in a tight pinch before an impending rain or between showers.

Night spraying in Ohio is gaining in popularity and there is some indication—contrary to our old beliefs—that there is less spray injury, during the summer months, from night spraying than from daylight spraying.

Another grower in southern Ohio told the writer this summer that he regularly ran two shifts during the spray season in the spring, from 3:00 a. m. to 12:00 m. and from 12:00 m. to 8:00 p. m. The writer asked, "Isn't it too dark at three to spray?" The reply was, "By the time the rig is oiled and filled with water and spray materials and the men get to the trees where we are spraying, they can see well enough. Then, too, we put on enough materials to make sure we cover thoroughly."

His finished product proved his statements. By actual count, tree run, he had 92.5 per cent Rome, Delicious and Stayman—all severe scabbers in Ohio—absolutely free from insect or disease blemishes on 50 acres at harvest time. Across the fence his neighbor who sprayed "when he got around to it" had 100 per cent scab, plus about 10 per cent codling moth and 20 per cent curculio injury. That surely was a convincing illustration.

The most universal cause of failure to control scab, in the opinion of the writer, after experience in three eastern fruit growing States, is the lack of timely spraying, which is directly due in most cases to insufficient equipment. Surveys have shown that many fruit growers are trying to spray 50 to 75 acres of orchard with one rig. Let's see what this means. It will take about a week of good spraying weather to cover this acreage with average equipment. During a rainy season—and it is during such seasons that scab is severe—these growers are unable to cover their trees for two and many times three weeks. How can they hope to get control? The part of the orchard sprayed first has grown many new leaves before they have sprayed the last part. Such growers apply but one spray per year—a continuous spray.

Every year trees sprayed in this fashion have some scab, and in a year like 1929, the trees either lose their fruit or the fruit is all scabby and worthless. Many times such trees also lose their leaves. In one Ohio orchard the young Rome Beauty trees had only a few leaves at the tips of the branches on September 11, 1929. Many times the writer has seen severe apple scab, by defoliating the trees in one season, rob a grower of two crops of fruit. The year the trees are defoliated there is no possible chance for the tree to bring through a good crop, because the leaves make the foods that go into the apple. Then early defoliation prevents the tree from setting fruit buds for next season, and without flowers there can be no fruit.

Profits Reduced by Improper Spraying

SEVERAL examples taken from actual experience will serve to drive home the value of proper and sufficient equipment to adequately care for a bearing orchard. In northern Ohio one apple grower with 90 acres of bearing trees has one medium sized spray rig. He tried to spray this acreage between showers. Some of the time he said it was too wet to get through the orchard. Two weeks after blossoming there was (*To Page* 15)



In the Taite orchards, the spray tank is replenished in three minutes, from the carrier tank mounted on top of the tractor. The actual work of spraying becomes an almost continuous operation, as time out for filling the spray tank becomes an almost negligible quantity.



QUESTIONS and COMMENT

Conducted by T. J. TALBERT

Questions on fruit growing problems and on general horticulture will be answered through this department if of general interest. For reply by mail enclose 2c stamped envelope (air mail 5c). Address AMERICAN FRUIT GROWER MAGAZINE, 53 West Jackson Blvd., Chicago.

Some Pruning Principles and Practices

PRUNING is generally considered the most baffling problem with which the fruit grower deals. Experimental work is much less conclusive with regard to the best methods of pruning than with other orchard practices. The results of pruning may not all be noticeable for several years, and this fact tends to make the problem all the more uncertain and difficult.

Naturally, therefore, different systems of pruning have been popular for a time and later have come into disfavor and have been discarded. A few years ago apple growers were pruning severely, while the present tendency is to do a minimum amount of pruning. Consequently, some fear that the growers are as far wrong now as they were when the trees were pruned too severely. All admit that the pendulum has now swung its full length toward the side of little or no pruning.

The change from heavy to light pruning has resulted from a study of the performance records of the best orchards. This study has convinced a majority of the growers that after all the best place to study pruning and training systems is in the most productive orchards, and that the varietal characteristics of the trees must be carefully considered among the factors determining the amount and kind of pruning and training to be given.

Objects of Pruning

1. The objects of pruning are essentially two in number; first, to alter the shape or growth of the trees; and, second, to influence the production and character of the fruit. A more detailed statement regarding the objects of pruning, however, may be listed as follows: (1) To increase the vigor of old trees and regulate the amount and direction of any growth; (2) to prevent the formation of weak and undesirable crotches; (3) to remove all dead, badly diseased and injured wood; (4) to remove crossing or interfering branches; (5) to restore in young trees at planting time a proper balance between top and root system; and (6) to regulate and distribute the number of main or scaffold branches on the tree trunks.

2. Proper pruning of the tree top will restore the balance between the root system and the top of the tree, which is disturbed when many roots are destroyed at the time the trees are dug for transplanting. One-year-old trees usually grow in the form of a straight whip or stem. The pruning in such cases will consist of cutting the tree back at planting time to a height of 28 to 36 inches from the ground. Such pruning will force the main or scaffold branches out below the point where the cut was made. The height of the tree head is, therefore, largely determined by the height at which the newly set tree is topped. The main or scaffold branches usually start buds in a space 10 to 14 inches immediately below the point at which the tree is headed or its top removed.

When to Prune

3. Someone has said that the time to prune is when your knife is sharp. There is a great deal of truth in this statement, because pruning work, if done properly, may be helpful at any season of the year in the formation of the main branches and in the elimination of thick clusters of branches which cause excessive shading of fruit spurs. Pruning at any season may also be helpful through the removal of dead and badly diseased limbs and broken branches. In general, however, it may be said that the principal work should be done some time after the leaves drop in the fall and before they appear in the spring. Any time during the dormant season when men may work comfortably out of doors, pruning work may be carried on with profit. With large orchards, one of the main problems confronting the grower is the matter of securing labor for the pruning work. The question, therefore, is not so much a problem of when it should be done as it is a matter of getting the pruning done. It is true, however, that labor may usually be secured with less difficulty during the fall and winter than during the early spring just as growth is starting.

4. That there is a definite relation between the leaf area of apple trees and the rate of growth of the tree as a whole appears to be fairly well established. Pruning in young orchards, whether light or heavy, generally has a tendency to reduce the leaf area and to that extent to be a dwarfing process. Pruning may seem to increase the vigor of growth, but this is generally due to the trees being made smaller by reducing the number of growing points. The stimulating effect of pruning is temporary, lasting only until the balance between the root and the top of the tree is restored.

Regulating Growth

5. When two branches grow at the same rate from a common point, they tend to form a narrow, weak crotch. If allowed to continue to grow equally, they are apt to break when loaded with fruit. This condition can be easily corrected by unequal cutting. If one of the branches is kept pruned back rather severely, it will develop into a side branch or lateral, while the unpruned branch will become the larger and the crotch between the branches will be made stronger.

6. The same principle of unequal cutting to regulate the growth of branches may be applied to young trees which lean badly toward the northeast due to the prevailing winds from the southwest during the growing season. If the leaf surface is reduced by heavier pruning on the northeast sides of the leaning trees, the weight of the branches is reduced. The heavier pruning has a dwarfing effect upon the limbs. On the opposite side of the leaning trees the branches will grow larger, with less pruning, and their weight will be increased. With such pruning the tendency will be to produce a more upright tree.

7. To produce a general renewal of growth, pruning must be distributed over the entire tree. When large limbs are removed, the growth response is in the region near the pruned end, and it is usually manifested by a heavy growth of water sprouts.

8. The removal of large limbs near small branches will generally result in the growth of many water sprouts, while the cutting of limbs or branches near laterals of about the same size or diameter results in little or no water sprout growth.

9. If heavy pruning is given two-year-old trees at planting time, but little, if any, gain in size over yearling trees results.

10. When it seems desirable to spread the tops of the trees, the cuts on the lateral branches should be made to outside buds. In the case of horizontally growing branches, it may be necessary to cut to inside instead of outside buds to keep the leader in the center of the tree top and to fill open spaces.

11. A common error in training trees toward the modified leader type is to leave the leader too much longer than the laterals. If this is done, two sets of branches, one above the other, may develop, giving rise to the so-called two-story type of tree. By proper attention to the suppression of the leader and the arrangement of the main branches, a well-balanced tree top may be formed and new branches produced in continuous succession and not in sets.

Prune Sparingly After Transplanting

12. During the first five or six years after transplanting, to prune as little as possible should be the general rule. Heavy pruning at this period tends to make the trees smaller and to keep them in a vegetative condition. Heavy pruning also inclines to retard the beginning of the fruiting period. If it is necessary to prune rather heavily to secure the required scaffold branches and their proper spacing, it is much better to do the work during the first two or three years after transplanting.

13. When trees have reached an age of five or six years, pruning for form is usually finished. After the trees come into bearing, pruning is given for the purpose of maintaining the trees in a profitable fruiting condition and should consist largely of thinning out the thicker parts of the tree and cutting back rangy branches.

14. Young trees when cut back are likely to produce more new shoot growth and materially less fruit spurs. Investigations seem to indicate that with equal amounts of pruning, "cut back" trees are dwarfed most.

Profitable Up-to-Date References

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Note.—In some instances stations will be unable to send publications to residents of other States without making a small charge to cover cost.

Paper Mulch for Orchards

I was much interested in the article in the October issue on paper mulch for orchards. I can believe that fine results could be obtained in many cases, but the author towards the end of the article is a prophet when he says, "conclusions may have to be modified," and, "what our conditions will be in the spring in regard to mouse damage or winter killing, we have no means of knowing, but expect to leave the paper on for better or worse."

It will be the latter with a vengeance. I got $7 worth of mulch paper two years ago, and fearing mice, tried it in a small way on early potatoes. The mice not only cut down and pulled the vines under the paper, but cut those down adjoining and pulled them under, so I told my son, who was building a house, to use the balance as sheathing paper on the outside wall. I do not expect that house mice will get under it there, as the foundation is of concrete.

Also, I very much doubt if strychnine-poisoned bait will kill meadow mice. It will not kill rats, but it will kill house mice. I have put it up lately to our farm and extension agents to show me dead short-tail mice, but so far they have failed.

Advise your writer on paper mulch to watch for mouse damage. He will not be disappointed, especially during January and February or when we have snow.—*A. R., Kentucky.*

YOUR COMMENTS regarding paper mulch for orchard soils are very interesting and worth while. The question which you raise in reference to the control of mice in the orchard is also worthy of careful consideration.

Much experimental evidence from many agricultural experiment stations has shown that a mulch of vegetable material thick enough to prevent the growth of grass and weeds is effective in conserving soil moisture. In general, however, such a mulch tends to reduce the supply of nitrate nitrogen, as compared with the supply available in a soil under cultivation and a cover crop system. Moreover, when trees are growing in a mulched orchard, they may remove the water so rapidly that there may be little difference in moisture content of the mulched and unmulched soil.

The above facts are stated as an approach to our problem with reference to the use of paper mulch. As yet, we do not have much authentic information regarding the use of paper mulch in orchards; and, of course, the grower will use good judgment by going slow in the adoption of paper mulch on a large scale as a means of conserving moisture in the orchard.

Like many other new practices, methods and the use of new equipment, some are too slow to adopt the new, while on the other hand many may be too quick in accepting new practices. In all justice and fairness to paper mulch, it is believed that under certain conditions and in certain orchards, the employment of the paper mulch may be a very paying proposition. Even if we had much experimental evidence extending over a period of years, we might not even then be able to make blanket suggestions or recommendations for all the regions growing fruit trees. No doubt the problem will prove to be like that regarding the use of straw mulch and other practices. It may be well adapted to certain localities or orchards, while, on the other hand, it may not be suited to orchards or regions of another community or section.

Perhaps we will come to this, that the paper mulch must be tried out in an honest and conscientious way, at first on a small scale to determine whether or not it is adapted to the particular orchard when all conditions and factors are given due consideration.

The mouse problem could, no doubt, be solved if it were all, particularly so since poison bates of various kinds are now being used very successfully. It would seem that the paper mulch would not be much more likely to harbor rodents than the grass mulch and litter which is found in many sod orchards.

The expense of the paper and the labor required in installing it is certainly a big factor. Moreover, a problem which will come in for thought and investigation is as to how long the paper will last and the best methods of laying it in the orchard. Many other problems of equal importance may also arise for consideration and solution.

"Phony" Peach Disease

In your October issue you mention phony peach disease. I thought I was up on all kinds of diseases of the peach but this is a new one to me. Will you please explain just what action it has on the peach?—*H. J., Rhode Island.*

THE "PHONY" peach disease was first discovered at Marshallville, Ga., about 50 years ago. Recent surveys show that it is now present in nearly 90 per cent of the commercial peach orchards of Georgia. The disease has also been found in a limited adjacent section of Alabama.

Investigations of the United States Department of Agriculture during the past two years have shown that the disease is communicable and is spreading like that of a contagious disease. As yet, however, the exact cause or nature of the contagion is unknown. The discoveries made indicate the advisability of controlling the nursery stock of the infected regions to prevent the spread to other peach districts.

A "phony" peach tree develops large, flattened, dark-green leaves. It may possess a very compact, dense growth of apparently healthy foliage, due to the development of tufts of short-jointed shoots. The fruit decreases in size year after year and the flavor is also lowered, although the color is generally slightly better.

It is believed to be a disease of the root and probably a virus disease. Peach yellows, perhaps, comes in the same group. It is also thought that the "phony" peach disease is in the same class as the mosaic.

Pawpaws from Seed

Have you any data on the propagation of our native American pawpaw? I think there are possibilities for this fruit, as we used to get some very fine ones in the woods back home that were quite delicious. I procured some seeds this fall and intend to plant them in the spring. Is there any special way of getting them started?—*C. E. B., Ohio.*

THE PAWPAW (*Asimina triloba*) is a small tree ranging in height from 10 to 20 feet. It is grown mainly for its handsome large foliage and attractive flowers, and in some cases for its edible fruit. The natural range of the pawpaw is from New Jersey west to eastern Nebraska and south to Texas. Along the rivers and stream courses it may grow in great abundance. A deep, rich, cool soil is preferred. The trees, or shrubs, generally grow best in the shade of large trees. The pawpaw is generally considered very difficult to transplant successfully.

Perhaps the most striking feature of the pawpaw is the large edible fruits, which are sometimes as much as five inches long. In appearance the fruit resembles the banana. For this reason the plant in some sections is known as the "wild banana tree." When ripe the flesh of the fruit is rich yellow in color and sweet in flavor. Since the leaves are very large, they are suggestive of tropical vegetation.

Propagation is by seeds sown in autumn. Seeds are often stratified in the fall and sown in the spring. The plant may be propagated by layers made in autumn. It may also be grown by means of root cuttings.

Cross-Pollination Necessary

I want to plant several thousand apple trees of the following varieties: Delicious (Richared), Golden Delicious, Stayman Winesap and Rome Beauty. I want to plant solid blocks of each variety. I want to do this to facilitate spraying and packing. In your opinion, can I safely plant these varieties in separate orchards? If not, please name the varieties that should come into contact with each other.—*L. O. M., Pennsylvania.*

IT WOULD NOT be advisable to plant solid blocks of the varieties listed. This is true because it has been found that practically all varieties of apples may at times be at least partially self-sterile. Moreover, all varieties are generally benefited by cross-pollination.

Since certain orchard practices like spraying, harvesting and others may differ for particular varieties, it is advantageous as a rule to plant the different sorts in as large blocks as possible. At the same time, however, it is necessary to provide ample facilities for cross-pollination. This may be done by planting the varieties in blocks or strips of about four rows each, alternating them across the orchard.

The varieties which you are to plant would rank in about the following order as good pollinizers: (1) Delicious (Richared), (2) Golden Delicious, (3) Rome, and (4) Stayman. For best results, therefore, start with four rows of Delicious (Richared), then plant four rows of Stayman, followed by four rows of Golden Delicious, and then four rows of Rome. Start again with Delicious (Richared) and continue the same plan until the work is finished. You may secure good cross-pollination with blocks of less than four rows in width, but blocks consisting of more than four rows are not considered so satisfactory.

Shoot the Rabbits

Have you ever heard of using the automobile, spotlight and shotgun to kill the rabbits in an orchard? We tried it this fall and it worked fine. The first night we were out about an hour and killed 12 and the second night 15. A dark night is the best for doing the work. Three men can do the work with ease. One drives, one sits straddle of the hood with a spotlight in his hands and the third operates the gun and stands on the running board close to the man with the light. If you think this information would assist our brother fruit growers, will you kindly make a note of it in the next issue of AMERICAN FRUIT GROWER MAGAZINE.—*B. F. D., Ohio.*

Prizes for Best Native Nuts

"FIVE Hundred Dollars in Prizes for the Best Native Nuts—Black Walnuts, Butternuts, Chestnuts, Hickory Nuts and Beechnuts." That is the title of a circular recently issued by the Northern Nut Growers' Association, Inc., in the continuance of its work of bringing the nuts native in the northeastern United States and Canada into general cultivation. A copy of the circular may be obtained by sending a two-cent stamp to Dr. W. C. Deming, Contest Manager, 31 Owen street, Hartford, Conn.

The work of the Northern Nut Growers' Association, Inc., in domesticating the nut crop of the northeastern United States is interesting. The association has nothing to sell and was not organized for profit. It is a scientific association and is composed of those best informed about nut trees and nut growing. It has members in nearly every State in the Union and in many foreign countries. Most of our fruits and vegetables were domesticated so long ago that their history has been lost, and in some instances the wild plants from which they originated are unknown. In the case of nuts we can see the process now going on.

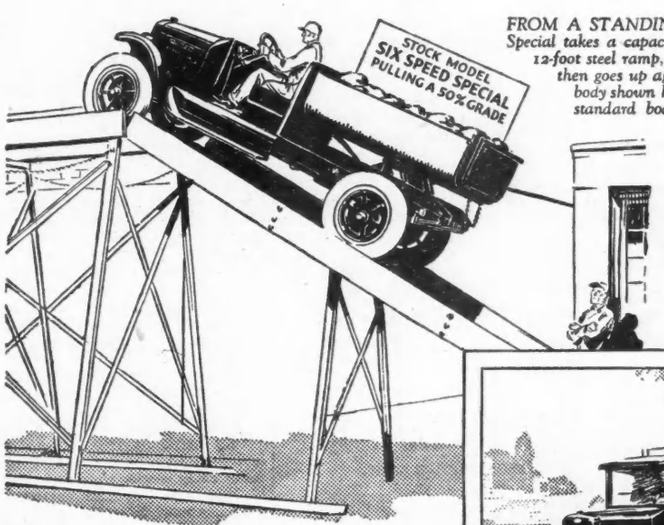
The first step is to find the best nuts now growing. For nearly 20 years this association has been seeking these by means of prize contests like the one above mentioned. Some very superior nuts have been discovered in this way, among which may be mentioned a black walnut whose shell is as thin as that of an English walnut, also another black walnut whose kernel cracks out in one piece like the kernel of the hazel nut. A pecan two and one-half inches long and three and one-half inches in circumference has been found, as well as a hickory nut with shell so thin that it may be cracked in the hand. To sum up, we might say that already between 300 and 400 nuts have been discovered so much better than the ordinary that they have been deemed worthy of further observation.

This is being accomplished by multiplying the tree by grafting or budding. Learning how to do this has not been easy. For centuries we have known how to graft fruit trees, but it is only recently that we have learned how to graft nut trees. As a matter of fact it took nearly 20 years' work before the hickory could be grafted with anything like certainty.

Grafted trees of these fine varieties have been planted out in orchard form where they have enough space to develop and where they will get ample food and good care, and their behavior is being carefully watched. Those that show themselves to be the most desirable varieties are the ones that will form the nut orchards of the future. Even though we have some unusually promising varieties now, it is not believed that we have anywhere near all the good varieties, hence the search for fine varieties is still being kept up.

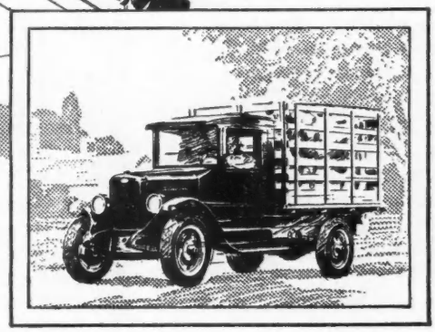
It has been found that nut trees bear much earlier than was expected. One of the first experimental orchards set out was interplanted with apple trees so that the orchard might be producing something while the nut trees were coming into bearing. To the amazement of everyone, it was found that most of the nut trees bore about as early as the apple trees. —*Willard G. Bixby, New York.*

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The Market Review

By PAUL FROEHLICH

United States Bureau of Agricultural Economics

BY LATE November, the fruit supply had decreased to a few staple lines, including apples, citrus fruits, and the light remainder of the grape and pear crops. Both grapefruit and oranges have been moving in much heavier volume than last autumn, but other fruits are behind last season's corresponding record. Apple prices declined slightly during the peak of the harvest period but were still considerably higher than a year ago. California grapes advanced, as the season neared an end, and pears continued to sell at relatively high levels.

November Crop Reports

Apples: The apple harvest seems to have turned out about as expected a month ago, nearly all the important producing areas reporting production to be light and quality far below average. The crop is now estimated at 140,099,000 bushels, compared with the 185,743,000 harvested last season and an average of 183,452,000 during the previous five years. Production was substantially heavier than in either of the low years, 1921 or 1927, but otherwise the smallest since 1907.

The commercial apple crop is estimated at 28,519,000 barrels of three bushels each, compared with 35,268,000 barrels last year and an average of 32,468,000 barrels during the previous five years. The western boxed-apple States produced the equivalent of 12,846,000 barrels, compared with 16,811,000 last year, and the barreled-apple States 15,673,000 barrels, compared with 18,457,000 barrels last year. Small size and poor quality are reported from most of the commercial States.

Pears: The pear crop turned out slightly better than expected a month ago, the estimated production being 20,812,000 bushels, compared with 24,012,000 last year and 20,211,000 bushels the average production for the five years, 1923-27. The crop was smaller than last year in the large producing States, but Colorado, Oklahoma, Texas and a few other States had larger crops. California, with an estimated production of 7,509,000 bushels, has 36% of the total crop.

Grapes: Grape production is estimated at 2,045,000 tons, compared with 2,671,000 tons harvested last season and an average of 2,250,000 tons during the previous five years. The crop is rather light this year in all important States. In California, where grapes were extensively damaged by a late spring frost, the production of wine varieties is now estimated at 427,000 tons, as against 482,000 tons produced last year. Table varieties show a production of 327,000 tons, compared with 478,000 last year. Raisin varieties show a production for all purposes equivalent to 1,021,000 tons of fresh grapes, compared with 1,406,000 tons last season. This year, some 241,000 tons of raisin varieties were sold fresh and the portion dried represents the equivalent of 195,000 tons of raisins.

Citrus Fruits: The October forecast of 16,000,000 boxes of oranges and grapefruit as the commercial crop in Florida has not been changed, although the general condition of the Florida orange crop declined three points during October. Some improvement occurred in Texas and Arizona during the month. Condition of Florida grapefruit was raised four points and now is estimated at 58% of a full crop. Condition of Arizona oranges and grapefruit exceeds that in any other State and is reported as 92% of a full crop. Louisiana expects 187,000 boxes of oranges, compared with 220,000 last season.

Citrus Shipments Active

November and December are prominent months for citrus fruit (especially oranges), partly because of the holiday trade. One of the startling things among the shipment reports is the heavy movement of Texas grapefruit. By November 9, about 750 cars of grapefruit had left Texas points, or nearly five times as many as a year ago. The Florida record also was running ahead of last season's figure and had passed the 3000-car mark. California had shipped more than 1100 cars of oranges in the early part of the new season, as against 40 cars by the same time last year. On the other hand, Florida with 570 cars to November 9 had only one-fourth its 1928 record to that date. Alabama orange output had already totaled 200 cars, or twice as many as during all of last season. Baltimore dealers were getting $3.50-$4 per box of Florida Parson Browns.

Storage Report on Apples

On November 1, the commercial cold-storage plants throughout the United States reported on hand 2,143,000 barrels, 10,123,000 boxes and 6,388,000 bushel baskets of apples. The combined holdings under refrigeration were equivalent to 7,647,000 barrels, which would be 12% below the corresponding figure for last season and 9% above the average holdings on November 1. The supply of cold-storage apples in barrels was 28% less than a year ago and the same quantity below the five-year average. Boxed fruit was in 18% lighter supply than on November 1, 1928, but was 8% more plentiful than the average holdings at this time of the year. About three-fourths of the boxes in cold storage were held at points in the Pacific Coast States. Bushel-basket apples showed an excess of 30% over last year's figure and were 134% more abundant than the average November supply of the past five years.

Prices Slightly Lower

City market prices for eastern apples had declined a bit by mid-November, but these early losses were soon expected to be recovered. Several varieties of well-graded apples from the Potomac-Shenandoah Valley area were jobbing at $1.75-$2.75 per bushel basket, with Yorks around $1.50. Four leading varieties of Michigan apples sold on the Chicago market at a range of $2-$3 per bushel, compared with $1.40-$2 last season.

Shippers in western New York were getting $1.75 per bushel basket of best Baldwins, though most of the fruit was going into storage for the later market. The city price on this stock was $2-$2.25. New York Wealthys were jobbing in the metropolis at $1.50-$2, McIntosh at $2.25-$3 and Rhode Island Greenings at $2-$2.38. Barrels of McIntosh were quoted at $7-$8, which was somewhat below last year's corresponding price. At shipping points in the Pacific Northwest, three important varieties, Extra Fancy grade and medium to large sizes ranged from $1.85 to $2.85 per box, Winesaps holding the lowest place, Jonathans a middle position, and Delicious bringing highest price. A year ago the same varieties ruled $1.10-$2.25 on an f.o.b. basis, with Jonathans then at the lowest level.

Movement Lagging

By early November there was a considerable decrease in carlot movement of apples. Storage houses were fairly well filled and the crop can now be moved out gradually. By November 10, 1928, about two-thirds of the 1928-29 season shipments had been completed, the record by that time being 83,000 cars. If the 62,100 cars forwarded by the same date this year represented a similar proportion of the season's probable total, approximately 95,000 cars would be moved from the 1929 crop. Western producing areas had already forwarded 28,200 cars, compared with 39,000 by early November last season. The 34,000 cars moved from eastern and northern shipping points lacked 10,000 of equaling the corresponding total for last year. By mid-November the daily movement was averaging about 600 cars.

Export Shipments Gaining

Apple exports from eastern producing sections of United States and Canada are catching up with last season's corresponding figure. By November 2, about 1,179,000 barrels had been exported, as against 1,503,000 during the early part of last season. Outbound movement of boxes, however, was still only 40% of the 1928 total to this time, or 1,550,000 boxes, compared with 3,908,000 a year ago. Twice as many boxes as barrels were exported during the last week of October. Prices had declined slightly on the Liverpool auction.

One of the large associations of growers in the Yakima Valley of Washington has developed considerable trade with China. As goods in China are bought very largely by label or brand, an attractive Chinese label for this association's apples has been devised. By the aid of new sizing machines this one organization is able to pack 40,000 to 50,000 boxes of apples daily, or approximately 60 carloads.

According to a recent bulletin of the United States Department of Agriculture on "Marketing Fresh Fruit in Europe," American fruit growers and shippers must keep in close touch with production, consumer preferences and current market conditions abroad in order to compete successfully with other producing countries shipping to foreign markets. Although the exportation of fresh fruit from the United States to Europe has made constant progress, if the possibilities as to production of apples in Europe are realized, Europe can become self-supporting with regard to this fruit. For the present, European countries will take shipments of any of the standard varieties of apples grown in the United States, in season, although varieties which do not have good carrying qualities are not popular. The greatest demand for apples in Great Britain is from September to April. Late in the fall comes the Scandinavian demand. Germany and the Netherlands ordinarily do not take large quantities until after December 1. Cheap oranges received from Spain and Palestine in the winter restrict the European demand for American oranges largely to the summer months. Grapefruit has had a rapid increase in demand throughout Great Britain but has not been well introduced into continental countries. Erratic competition of many shippers in Florida, the West Indies and California emphasizes the need for co-ordination of shipping efforts among producers.

Grapefruit from Florida was bringing around $4.50 per box on the Liverpool, England, auction in early November, as against an average of $6.35 the year before. California Valencia oranges were ranging $4.25-$5.10.

California Grapes Prominent

The season for eastern grapes was finished and arrivals from California dominated the market. The estimate of total shipments of California grapes has been revised upward and now stands at 60,000 cars, or only 13,000 less than last year. Nearly all the table stock except Emperors had been moved. Lug boxes of Emperors were selling on a cash-track basis of $1.20 for good stock. Some sawdust packs were reported at $1.85-$2 for chests and $2.50-$3 for kegs. Malaga grapes for juice purposes were a leading feature of the juice market, and this stock had advanced at shipping points to $35.50-$40 per ton. On the whole, prices to growers have been fairly satisfactory this season.

Blunt High School Man—I don't know why it is, but every time I get up to speak, some fool begins talking.

And then he wondered why everyone laughed.

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THE difference between fruit trees that bear poorly and those whose luscious fruit literally loads their branches, often is only a matter of a few pounds of Chilean Nitrate of Soda. This amazing nitrogen fertilizer makes more fruit every time . . . better quality, too.

Chilean Nitrate starts working as soon as applied. Its life-giving nitrogen is immediately available. Two to eight pounds per tree, according to tree age, will accomplish wonders. It sends a stream of strength and vigor coursing through the tree that frequently doubles your yield . . . sometimes trebles it. The fact that Chilean Nitrate contains iodine, too, is being given increasing importance by fruit authorities.

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Our new 44-page book, "How to Fertilize" gives valuable information about fertilizing fruit trees of all kinds. It is FREE. Write for Book No. 1, or tear out this ad and mail it to us with your name and address written on the margin.

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In replying, please refer to Ad No. 36-C

Long-Term Farm Loans at Low Cost

Those Who Wish to Replace Present Short-Term Loans with Long-Term Loans Should Apply Sufficiently in Advance So There Will Be No Need for Worry When the Old Loan Comes Due.

By H. PAUL BESTOR

WHEN CONGRESS was discussing ways and means of providing long-term loans on farms in this country back in 1916, it is doubtful if any of the senators or representatives visualized the extent to which the co-operative or mutual branch of the system, which they made possible at that time through the passage of the Federal Farm Loan Act, would develop. After supplying the temporary funds for the establishment and operation of 12 federal land banks, the great job was setting up the local national farm loan associations. These associations had to have at least 10 members and supply farm mortgages which would give ample collateral for a loan of at least $20,000.

From that rather humble beginning, the system has expanded until there are local national farm loan asssociations in almost every agricultural county in the United States. In fact, there are 4670 associations, and the number of agricultural counties is something like 3000.

These associations are not housed in marble and they do not do business over mahogany desks. They are operated with as little expenditure of cash as possible. In other words, it was the thought of Congress when it passed the Act creating the system that the money would pass between the investor in the federal land bank bonds, from whence comes the money to loan, and the farmer who borrows the funds, at a minimum of cost. It made the bonds tax-exempt, thereby reducing the interest rate which they would have to carry by one-half to three-quarters of one per cent. It limited the charge which the federal land banks can make for their services to one per cent. Included in this one per cent must be the dividends paid by the banks to the local associations on the stock which the associations hold in the banks.

There are some associations that have as high as a thousand members, and there are more than a thousand associations which have outstanding loans amounting to between a quarter and a half million dollars. When we realize what lending of a half million dollars within an agricultural county means, we begin to appreciate the value of these associations and the federal land banks. In fact, there are 144 associations which have loans outstanding amounting to between one and two million dollars. The largest association has outstanding more than $5,000,000.

These local associations are regular business institutions. The secretary-treasurer is the executive official, operating under the direction of the board of directors, and it is to him that the borrowers make their applications for loans. If the secretary-treasurer believes the farm and the farmer come within the provisions of the Federal Farm Loan Act for the making of loans, the loan committee of the association appraises the farm and sets a value on it for loaning purposes—the loan not to exceed 50 per cent of the value of the land for agricultural purposes and 20 per cent of the insured, permanent improvements.

In arriving at the value of the land, its record in producing crops and the returns therefrom over a series of years are principal considerations. Of course, sales values and home values are also given consideration. The farm is then inspected by a land bank appraiser and his recommendation, together with that of the association, is considered by the bank in connection with making or withholding the loan.

This sounds as though there were a good many operations between the farmer's application for a loan and when he gets the money. Possibly there are a few more than some loan companies require. However, the federal land banks make loans for such a long time that they give consideration to things which a person or institution, making three to five-year loans, which they can call at the end of those periods, does not have to consider.

It is therefore advisable for those who wish to obtain long-term loans to apply sufficiently in advance so there will be no need for worry when the old loan comes due. It is usually possible to do this, for farmers generally know when their present mortgages fall due. In fact, two-thirds of the loans made by the national farm loan associations through the federal land banks are for the purpose of taking up short-term loans. And as the machinery has increased in efficiency the time necessary to complete the loan has been greatly reduced.

An interesting comparison between the costs of short-term and long-term loans is afforded in the accompanying table, assuming the loans to have been made August 1, 1919, in the principal sums of $10,000 each, at a five per cent interest rate, the first loan ("William's") being made for five years, the second loan ("Harry's") being made by a federal land bank on a long-term amortized basis. William's loan will come due again in 1934. Harry used the $720 he saved to pay the interest on his loan last August. He doesn't have to worry about renewals.

If there is anything in the number of people who have thought this type of loan superior to that obtainable elsewhere, certainly the co-operative loan has many boosters, for since 1916, 471,024 farmers have applied for and obtained loans from these institutions, amounting to $1,451,671,000.

Comparison of Cost of Long-Term and Short-Term Loans

	William Paid	*Harry Paid*
August 1, 1919—		
Commission 1%	$100.00	
National farm loan association fee		$100.00
Abstracting	8.00	8.00
Recording	2.00	2.00
August 1, 1924—		
New loan at 6% on account of money market which added $100 per year for 5 years	500.00	Nothing
Commission 1%	100.00	Nothing
Abstracting	8.00	Nothing
Recording	2.00	Nothing
August 1, 1929—		
Commission 1%	100.00	Nothing
Abstracting	8.00	Nothing
Recording	2.00	Nothing
Total—(Exclusive of interest payments and principal reduction)	$830.00	$110.00

INSULITE

the Wood-Fiber Insulating Board

Shrinkage and spoilage are turned to PROFIT in INSULITE the Wood-Fiber Insulating Board STOREHOUSES

FULL ½ INCH THICK-MEANS **12½% MORE EFFICIENT INSULATION** THAN ORDINARY ⅜" INSULATING BOARDS

PROPERLY insulated storehouses require less heat to prevent the contents from freezing. Most fruits and vegetables are 90 per cent water . . . heat dries out this moisture, causing a heavy shrinkage and impairing the quality. The more heating days . . . the greater the shrinkage loss.

The storehouse insulated with Insulite requires fewer heating days because Insulite walls are slow to transmit heat and cold—the correct temperature and humidity can be controlled at all times. Furthermore, Insulite helps to make possible proper ventilation—prevents condensation of moisture on walls and ceilings, which causes spoilage and a loss of profits.

Insulite, an all wood-fiber board a full ½ inch thick, has great tensile strength . . . as sheathing it has several times the bracing strength of lumber applied horizontally. Insulite can be easily and quickly applied . . . it is economical—replacing other materials, and insulating in addition.

Insulite is chemically treated to prevent deterioration, and to make it vermin and rodent resistant.

When building a new storehouse or lining your present one—specify Insulite, and turn possible shrinkage and spoilage into profit.

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(A Backus-Brooks Industry)
1200 Builders Exchange, Dept. 37L
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MAKE THIS TEST



THIS simple test shows the superiority of Insulite as a non-conductor of heat and cold.

REPLACE the cover of a kettle of boiling water with a piece of Insulite and on the Insulite put a cube of ice. Check the time required for the heat to pass through the Insulite and melt the ice. Make the same test with other insulating boards.

MAIL THIS COUPON TODAY!

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1200 Builders Exch., Dept. 37L
Minneapolis, Minnesota

Gentlemen:
Please mail me a sample of Insulite to test for myself. It is understood that there is no obligation on my part.

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R. F. D. ..... State .....

USE INSULITE FOR BARNS ~ POULTRY HOUSES HOG HOUSES ~ SHEEP SHEDS MILK ROOMS ~ DWELLINGS
Resists COLD ~ HEAT ~ DAMPNESS

NOW - SHERWIN-WILLIAMS D-L-S DUST

TRADE MARK REGISTERED U.S PATENT OFFICE

(Dry Lime Sulfur and Sulfur)

(with and without Arsenate of Lead)

NEAL ORCHARDS
CLEVELAND, OHIO

July 19, 1929.

Sherwin-Williams Company,
601 Canal Road, N.W.,
Cleveland, Ohio.

Gentlemen:

Our first season's experience with your new D.L.S. (dry lime sulphur) dust shows much improvement over the regular 300-mesh sulphur dust.

Because of the low temperature and very wet weather during the past season, that portion of our orchard where the regular 300-mesh sulphur dust alone was used, was damaged more from apple scab than that portion of the orchard wherein your new product was used.

The result was so outstanding that we will put a much larger portion of our trees under the new D.L.S. dust during the coming season.

I am convinced it is an article of great merit.

Yours very respectfully,

CJN:P

What a large apple grower thinks of D.L.S. Dust

HERE at last is a dependable dusting compound for apples —D.L.S. Dust—Sherwin-Williams new Dry Lime Sulfur Dust. Will be offered with and without Arsenate of Lead.

D.L.S. Dust was tested by the Ohio Agricultural Experiment Station in 1928 and 1929 in comparison with standard sulfur dusts.

In the 1928 experiments where 300-mesh dusting sulfur was used, 23.9 per cent of the apples were scabby. Only 4.4 per cent scab was present on the apples dusted with D.L.S. Dust.

In writing of this experiment in the February American Fruit Grower, Dr. H. C. Young said: "The 85-15 sulfur-dry-lime-sulfur dust gave excellent control, much better than any of the standard dusts now generally used."

C. J. Neal of Cleveland, one of Ohio's largest and most successful apple growers, used D.L.S. Dust for the first time last year. Read his letter. He, too, found it a big improvement over the regular sulfur dust—in fact, "The result was so outstanding . . . that I will use far more next year."

Write for booklet on D.L.S. Dust

Write us for full information on dusting with D.L.S. Dust. Data of particular interest to commercial grower furnished free.

Dusting with D.L.S. Dust in the Neal Orchard near Cleveland

D.L.S. Dust is the most desirable sulfur dust ever developed to control Apple Scab. It is far more efficient than straight sulfur because it is more active and adhesive.



OHIO AGRICULTURAL EXPERIMENT STATION

THE BIMONTHLY BULLETIN

Vol. XIV, No. 2 - March-April, 1929 Whole No. 137

RESULTS OF FIELD TESTS WITH SULFUR DUSTS

Dusting Experiments on Apple Trees

Treatment	Total Scab on Leaves	Total Scab on Fruit
300 mesh dusting sulfur	9.6	23.9
85 parts sulfur plus 15 parts finely ground Dry Lime Sulfur	1.75	4.4

—"The 85-15 sulfur-dry-lime-sulfur was exceptionally promising and gave no injury. This shows the superiority of D.L.S. Dust (85 parts sulfur and 15 parts finely ground Dry Lime Sulfur) over ordinary dusting sulfur."

SHERWIN-WILLIAMS
SPRAY AND DUST MATERIALS



W. W. Farnsworth, Frank N. Farnsworth and William B. Young of The W. W. Farnsworth Co., Waterville, Ohio.

OFFERS EITHER -

or if you spray -

DRY LIME SULFUR

THE ORIGINAL

For three years W. W. Farnsworth Co. has used this modern Sherwin-Williams spray

THE "absence of russeting" is the feature that all growers praise in Sherwin-Williams Dry Lime Sulfur. Note the letter from The W. W. Farnsworth Co. For three years they have used this *improved* spray to insure a splendid finish on their apples. It produces a better color and a fine "waxy" finish.

The W. W. Farnsworth Co. writes that control of apple scab with Sherwin-Williams Dry Lime Sulfur has been *uniformly successful.* It is equally effective against San Jose scale, pear scab, peach leaf curl, and cherry leaf spot.

It kills over wintering scale—does not injure the bud or foliage. It is *safe.* Yet carries a *more lasting punch,* assures *maximum efficiency.*

Praises convenience

W. W. Farnsworth Co. like this dry, powdered spray for convenience and ease of handling. The twelve and a half pound bag comes ready to empty into your spray tank . . . saves time in mixing . . . sprays without trouble . . . requires no heavy hauling or returning "empties."



Convenient 12½ lb. bag.

Sherwin-Williams Dry Lime Sulfur retains its strength—is uniform—always ready for use. No leaking, freezing, or deteriorating. It is the *original* Dry Lime Sulfur, *patented.* U. S. Patent No. 1,264,908, Jan. 29, 1918. Reissue Patent No. 14,890, June 22, 1920.

Prepare for the season's spraying needs now. See your local Sherwin-Williams dealer. He will help you pack a big percentage of top-price "extra fancy" fruit.

Send for full information

Write us for valuable information on Sherwin-Williams Dry Lime Sulfur and Mulsoid-Sulfur. Discussed particularly for the commercial grower. The Sherwin-Williams Co., Dept. 703, 601 Canal Road N. W., Cleveland, Ohio.



Read what the W. W. FARNSWORTH CO., Waterville, Ohio, say:

"In reply to your recent letter relative to our results from Sherwin-Williams Dry Lime Sulfur, we wish to reply that our results have been highly satisfactory from every standpoint.

"Three years' use of Sherwin-Williams Dry Lime Sulfur on Apples has produced fruit of higher color, smoother finish with absence of russeting and increased size as compared with liquid lime sulfur solution. The foliage is free from spray burn and retains its green velvety appearance until autumn frosts.

"The use of your product on our 20,000 bushel apple crop this season has been especially satisfactory on badly scabbing varieties as McIntosh and Wealthy. This material is used at the rate of three pounds per fifty gallons before bloom, and one and one-half pounds per fifty gallons after bloom."

A few other nationally known users

George A. Marshall Fitchburg, Mass.	W. S. Perrine Centralia, Ill.
Melrose Orchards Wooster, Ohio	R. A. Simpson Vincennes, Ind.
Brown Fruit Farm Worthington, Ohio	H. W. Allison Shippensburg, Pa.
Thomas S. Smith & Co. Chicago, Ill.	H. F. Hershey Peerless Orchards Hamburg, Pa.
William McNabb Hardin, Ill.	H. W. Gowdy Union Pier, Mich.
Paul Judson Kinderhook, N. Y.	Albert B. Smith Magnolia, Delaware
Frank T. Street Kentucky Cardinal Orchards Henderson, Ky.	C. W. Rich Cobden, Ill.
W. N. Conant Buckfield, Me.	C. H. Glover Belle Plaine, Kansas

Growers like Mulsoid-Sulfur for peaches

Peach growers are enthusiastic over Mulsoid-Sulfur, the Sherwin-Williams spray for peaches. It prevents brown rot and scab. Mixes evenly and easily with water.



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Beware Of The Small Rupture That "Doesn't Bother Much"



Light as a Feather Yet...Holds Rupture!

AN Ohio Scientist has developed an amazing new feather-light device that positively locks rupture, yet lies soft as a baby's velvet palm! Remoulds itself with every movement! Breathes in air to the rupture through countless tiny pores—lets healing blood circulate! Cruel trusses can now be thrown away! The little "Millionair," actually so light it floats, lets truss victim "live again"; to cough, sneeze, be active once more. You can't imagine the relief and comfort! You must see this new way to end truss torture.

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The discoverer is giving away 50,000 samples of the amazing Airtex. Send for yours today without obligation. Also Free Book on Rupture. Act for rupture relief—you will be amazed with this new device. Utterly obsoletes old fashioned trusses. New Science Institute, 1667 Clay Street, Steubenville, Ohio.

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CHATS With the Fruit Grower's Wife

By HAZEL BURSELL

"WHAT *shall* I give for Christmas this year?"

That is the universal cry throughout the land, beginning with vague murmurs just after Thanksgiving and climaxing into full-throated wails by Christmas eve. Then, all is "quiet on the western front" for another eleven months, when the hectic rush begins all over again.

The purpose of this article is to offer our contributions toward the solution of the "what-shall-we-give" question. Since there are so many books, toys, pieces of furniture, etc., available for children, the selection of their Christmas gifts should not prove difficult, and we shall, therefore, not discuss this point further. Our problem is to suggest suitable gifts for adult members of the family and friends of both the masculine and feminine persuasion. We shall divide them into groups and go about it systematically.

Send Greeting Cards

The first thing to do is to make a list of names—or rather two lists—one for greeting cards and the other of those for whom you really must prepare definite gifts. Pare your gift list to the bone—don't give expensive, meaningless gifts, rather put all "I-suppose-I-ought-to's-but-I-don't-really-want-to's" on the greeting card list and send them appropriate cards. They will doubtless be everlastingly grateful to you for your action, as it lifts their burden also. If you will feel better, talk it over frankly with them in advance, so there will be no hard feelings. One can always plead poverty in various degrees. The modern cards are so pretty, cheerful and inexpensive and they are such gay bearers of messages of remembrance and good cheer that they are in most cases more appropriate and more representative of the true Christmas spirit than costly gifts.

Gifts from Women to Women

The gifts that women may give to women friends and relatives are limited only by the giver's ingenuity and pocketbook. Here are a few off-hand suggestions—potted plants or flowering bulbs; recipe card cases containing "favorite" recipes with additional cards; the hand worked samplers and tapestries so much in vogue with the Colonial revival; pieced and quilted quilts; woolen comforters as light as the proverbial feather; real goose-feather or down pillows; hooked rugs; braided rag rugs; baskets of jams, jellies and cookies; gayly decorated cookie jars filled with cookies; appropriate pictures and books if you are sure you can please by your selections; boudoir lamps; boudoir pillows; dressing table ornaments; dainty hand-made lingerie; painted or covered clothes hangers; shoe racks; gaily papered hat boxes with hat pedestals; cretonne clothes bags with enclosed rod and special hangers; big leatherette or decorative oilcloth floor cushions; clever house aprons; household linens; card table covers in interesting felt appliques or stencil, and many other things.

Shrubs, garden books, rare bulbs, plants or vines are especially appropriate for the garden lover. Possibly you have something in your own garden of which one of your relatives or friends would greatly appreciate a "start." Again, you may have an heirloom around the house which you don't especially prize and which would bring great joy to the hearts of some of your granddaughters or nieces or even nephews—such as an old hand-woven coverlet, some really old china of quality, a solid walnut chair (needing refinishing possibly), a spool bed, or a black walnut chest of drawers. Why not give them now to those who really would appreciate them?

Similar Gifts Save Time

If you have quite a few women friends whom you wish to remember with some little inexpensive gift, you may look for some clever, original ideas, then make them up in several colors and give the same type of gift to each of them. They might be hand-painted scarfs, hand-painted georgette handkerchiefs, card table covers, smart new aprons, hat boxes, clothes hangers, cretonne covered doily cases, or laundry bags.

The very newest and prettiest idea for clothes hangers is to cover unfinished wooden ones in pastel-colored felt held in place by blanket stitching in contrasting colored yarn and finished off with a tiny cluster of simple felt flowers at the center. The felt cover is cut in a straight fold just large enough to cover the hanger arm and the edges allowed to come together at the top and ends for the blanket-stitched seam. Black, cerise, green, gray, blue, pink, rose, pale yellow, orchid, white and green are all appropriate colors.

The newest thing in aprons is a gay yet simple one-piece affair of pretty floral India print. One square yard of material makes the apron. The bib consists of two deep points, with the lower part of the apron cut square. The sides are slashed a few inches and the fullness pleated in two pleats instead of the usual gathering.

Gifts from Men to Women

The type of gift which a man may appropriately give a woman will, of course, depend absolutely on their relationship. Intimate gifts are suitable only for members of the family or members-to-be. For the woman friend, interesting new books or favorite old ones, carefully chosen etchings or pictures, desk ornaments, delightful (and usually dreadfully expensive) perfumes, flowers, candy, new music, quality luggage, and possibly umbrellas and gloves just about cover the field if you wish to be "correct" and in good taste.

Much more latitude is allowed for women members of the family. Jewelry; dressing table ornaments; lingerie; hosiery; boudoir slippers and dressing gowns; silverware; wrought iron, silver or brass bric-a-brac; electrical household appliances; handmade footstools; cleverly-shaped and painted wall shelves; chaise lounges; skirted dressing tables with benches; sewing cabinets; boudoir lamps; garden gifts; handsome living room pillows; dainty boudoir pillows; suitable wall tapestries; cedar chests and cedar-lined walnut chests are a few of the possible choices in addition to those listed in the preceding paragraph. Only the giver can make the proper choice for each individual on his gift list, as he alone knows their tastes, needs and preferences.

Some families prefer to give "necessities" only as gifts. These people might give the wife or daughter a pretty new dress, a new kitchen range, a set of dishes or silverware, a living room davenport, a handsome pine dresser for the dishes, a new bedroom suite, or even a kitchen cabinet. A group Christmas gift would be nice in such a case—something for all the family, such as a new car, radio, piano, davenport or camera.

Suitable Gifts for Men

The list of gifts suitable and liked by men would be practically the same for both men and women givers, so we shall give only one list. The man's preferences would determine the suitability of the gift in each case. Fishing tackle for the fisherman; choice "smokes" for the smoker; automobile accessories for the motorist; quality leather luggage or brief cases when usable; one of the clever new suspender and sock sets for the young



Christmas Candies

Orange Chocolate Wafers

Melt ½ pound of good quality dipping chocolate over hot water at a very low heat. Beat well and stir in two tablespoonfuls of chopped, candied orange peel. Spread in a thin sheet, using a spatula or other long-bladed flexible knife, on chocolate dipping paper, and when beginning to harden score with a sharp knife into wafers 3 inches long by 1¼ inches wide. When cold and firm remove from the paper.

Stuffed Prunes

Select dried prunes that are large and rather moist, cut a slit down one side of each prune and remove the stone. Fill the cavity with a whole walnut or almond meat, fondant, chopped candied pineapple or chopped candied orange peel. Roll each prune in powdered sugar and pack in layers with wax paper between.

Fruit Bars

Eight ounces of raisins, ½ pound of dried figs, ½ pound dates, 1 cup walnut meats, juice and grated rind of one lemon, ½ cup of confectioners' sugar. Put the fruit through the food chopper, add lemon juice and knead in the powdered sugar. Allow to stand over night, pressed out in a sheet ½ inch thick. Cut in bars, ¾ inch by 2½ inches. roll in confectioners' sugar and pack in layers with wax paper between until wanted.

Rocky Road

Melt 1 lb. good dipping chocolate, light or dark, as preferred. Melt over warm water (not hot) and beat till smooth. Then stir in 1 c. nuts and ¾ lb. marshmallows, or any other preferred proportion. Mix quickly just enough to coat and pour mixture quickly into a warm oiled platter or slab, tipping the platter to secure even distribution of the chocolate. Break into pieces when cold and firm. For a less expensive product, use a mixture of plain fondant and chocolate instead of all chocolate for coating, or use a chocolate fudge mixture of a firm type.

Marshmallow Mint Bonbons

Cut marshmallows in halves crosswise and flavor with peppermint by putting a small wooden skewer in a bottle of oil of peppermint, and then on the cut surface of the marshmallow. Arrange in layers in a box, cover and let stand over night. Dip in melted fondant flavored with peppermint.

Salted Nuts

Shell the nuts. For salted almonds, blanch by pouring boiling water over them and letting them stand for 3 minutes or until brown skins will rub off, dry on a towel and treat as any other type of nut. Heat ½ cup of cooking oil in a small iron frying pan. Put in a single layer of nuts and stir constantly until delicately browned. Cook almonds to a light brown, as they quickly acquire a burned flavor if overcooked. Other nuts may be made a slightly darker brown. Skim out the nuts, drain on brown paper and salt generously. Cool. Repeat the process until the desired quantity of nuts has been prepared.

Table of Abbreviations

1 t. equals 1 teaspoonful
1 T. equals 1 tablespoonful
1 c. equals 1 cupful
1 pt. equals 1 pint (2 std. c.)
1 qt. equals 1 quart (2 pt.)
1 lb equals 1 pound
1 oz. equals 1 ounce

fellow; fountain pens; wooden or brass tie racks; a set of practical brushes; shaving lotions of a favored brand; one of the new circular-motion safety razor sharpening sets; flannel bathrobes or silk dressing gowns when appropriate to his needs; hand-tooled leather billfolds with his name and address engraved inside; jewelry for members of family, such as watches, chains and suitable rings; subscriptions to especially interesting, expensive magazines; choice books on subjects of interest; or possibly a real signed etching of a dog or some other suitable picture are a few of the possibilities.

If you simply must fall back on the old stand-bys and give ties, socks, shirts and slippers to your men folks, for goodness sake, exercise some good taste and common sense in your selection, consider carefully their special preferences as to color, cut and material, and be sure to get the right size and style.

You can greatly simplify your Christmas shopping problems if, when you pass through the various large department stores, you will take note of various things suitable for Christmas gifts and possibly make small purchases regardless of the time of year. Then when the actual Christmas rush begins you will have your shopping list fairly complete and some gifts all ready for sending, and the completion of your shopping will be a comparatively simple matter.

May Give Perishables

Another good source of ideas is the various household magazines with their illustrated articles in the November and December issues. Some of them even maintain very dependable and helpful shopping services. Someone has suggested that we give perishables to those who are already burdened with their possessions, and we believe this is an excellent idea. The only caution we make is that perishables must be chosen and wrapped most carefully if they are to reach the recipient in anything like their original shape and freshness.

Gay and interesting wrappings are just as important to the proper enjoyment of a gift as is the selection of the proper gift itself. The wrappings should intrigue the curiosity and interest of the person to whom the gift is sent. However, the final outside wrappings of packages to be mailed must be strong, practical and able to stand much wear and tear if your gift is to reach its destination at all, let alone in some semblance of its original form. Remember to—

SHOP EARLY
WRAP CAREFULLY
ADDRESS CORRECTLY
MAIL EARLY.

Double-Timing the Spray Rig

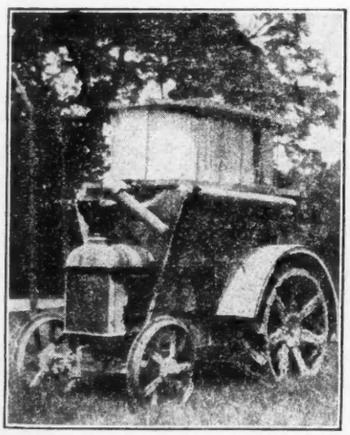
(From Page Seven)

not an apple left on 65 acres and the foliage turned brown. The only apples harvested were a few early ones nearest the house where he could spray, and his gross sales this year were not sufficient to pay his expenses.

In 1927 a grower in New Jersey who owns and operates over 350 acres of about 14-year-old apple trees was advised to start spraying. Then he started to repair his rigs and in about two weeks started to spray. Other sprays throughout the season were similarly applied. In the fall he had 45,000 bushels of apples worth $2 at the orchard for U. S. No. 1. Eighty per cent of his crop was scabby. He little more than paid expenses in a year when $50,000 should have represented his profit. He had not learned that, "Nature waits for no man."



Mr. Farnsworth carries a 300-gallon supply tank on his motor truck—which would otherwise be idle during the spraying season.



A "close-up" of Mr. Taite's water supply outfit. A 200-gallon tank mounted above the tractor.

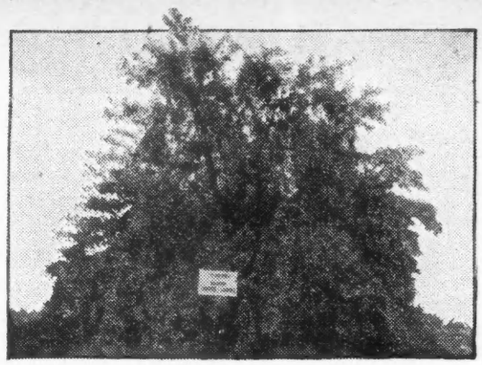
Another grower in the same county has a few more acres of fruit but has three spray rigs and two dusters. By actual count, the latter grower had not more than one per cent apple scab with about two-thirds of a crop. The loss this year in the first orchard would pay the cost and operating expenses for the season on a half dozen spray rigs.

The number of rigs is not necessarily a measure as to how long it will take one to cover up. The size of the rig and the convenience of the water supply, man power available and other factors mentioned earlier, are all important. Each grower can best adapt his machinery to his needs. He should be so equipped that within a maximum of 72 hours he can cover his acreage thoroughly. If he will equip himself in this fashion and spray as soon as word to cover up is received from the spray information service, he should have little loss from scab over a period of years.

Competition between fruit sections and between individuals in each section is so keen these days that only by using all the short-cuts possible and thus reducing the production costs per bushel can growers hope to continue to survive.

New Boarder—The study of the occult sciences interests me very much. I love to explore the dark depths of the mysterious, to delve into the regions of the unknown, to fathom the unfathomable as it were—

Landlady—May I help you to some more hash?



This 20-year-old apple tree in Mr. Blakslee's orchard, Medina, Ohio, has borne a 50-bushel crop.

FEED YOUR APPLE TREES
—and they will feed you

MR. ELIHU BLAKSLEE, Medina, Ohio, firmly believes that a generous application of available nitrogen annually enables apple trees to produce a good crop every year—instead of every other year when prices are low.

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Mr. Blakslee is a consistent user of Arcadian Sulphate of Ammonia and his apple trees, like any other growing plant, respond to liberal applications of available nitrogen plant food.

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In and About The GARDEN

Conducted by
FLORENCE B. CRANE

Ye bloom, O trees of Christmas time,
For baby's eyes to see.
And her smile is bright as she dreams tonight
Of the waiting Christmas tree;
And your sweet perfume in that humble room
Is a gift for the closing year,
And an added gem in the diadem
Of our golden Christmas cheer.

Ye bloom, O trees of Christmas time,
For an aged woman's hand,
Whose failing sight, through your grace tonight,
Looks out on the Fatherland.
And so to youth and age, in truth,
Your beauty makes more dear
Each joy and grace that has a place
In our holy Christmas cheer.
—Lalia Mitchell in *The Flower Grower.*

The Children's Christmas Plants

THE YOUNG SON or daughter of the family will be very much thrilled at having a small Christmas tree of his very own to plant in a tub until spring, when he may help to set the tree out in the yard, or he may start a small grove or row of trees of his own, adding a tree each year. They will have attained a fair size by the time he is grown.

One large red beet or three medium-sized ones, brought up from the cellar and planted in a pot the first of December, will make a lovely, gay-colored "foliage plant" by Christmas Day.

Planning the Vegetable Garden

NOW THAT the root crops have been gathered and stored, the last tomatoes and cucumbers pickled, the seeds for next year dried and put away in labeled packets, the weeds and vegetable tops used to swell the compost heap, the stakes and trellises disinfected, the tools cleaned and put away, and the berry bushes and young trees blanketed for winter, the gardener can lean back in his snug chair by the fire, and with a clear conscience indulge in that most practical form of daydreaming—planning next year's garden. Get out the notes, records and photographs of last season; you will not only profit by past experience, but there may be some record yield, some unusual effect, or some new idea that will furnish good material for an article.

Plan a new strawberry bed beside the old one, so that when a bed has borne for two years, you can plow it up and put in another crop. The berries will do better and rotation of crops is, of course, better for the soil. That is why it is a good idea to plan a new arrangement once in a while.

Prepare a Definite Plan

I like to take a large sheet of paper, a ruler and a pencil, and in a general way block in a plan of what is needed, filling in the details gradually, changing and arranging until most of what we want is provided for in as small a space as possible. Economy of space saves time in planting and cultivating, saves steps in gathering, and improves the looks of the garden; and having a complete plan saves much valuable planting time in the spring and insures getting in what you want. I know a family that planted a large garden and cared for it beautifully, but toward the end of summer they discovered that they had forgotten to plant any carrots!

The garden rows should run north and south, so that the tall plants can receive full benefit of the sunlight without shading the small plants. If the rows must go east and west, put the tall plants on the north side to prevent shading. It saves turning the wheel hoe to have the rows run the long way of the garden.

First block in the "permanents"—strawberry and asparagus beds, small berry bushes, fruit trees, the compost heap, and the space allotted to potatoes, corn and beans. Group the other vegetables somewhat according to the time sown—early, mid-season or late, and also according to the distance apart—cabbages and cauliflower together, for instance. Squashes, melons and cucumbers, that take up so much room, can be grouped in by themselves afterward.

How to Secure Maximum Yields

The purpose being to get the largest possible yield with the least possible labor, there are several more or less well-known devices that may be put to use.

Succession Cropping: Plant the long-season vegetables in the ground occupied by the short-season ones as soon as the short-season vegetables have been gathered. In our garden, celery is transplanted into the place vacated by the early peas, and beets are transplanted where part of the early potatoes have been. Summer turnips may be sowed broadcast over the ground formerly occupied by the early beans or potatoes, and a bunch of brush dragged over the patch to cover them. As soon as the peas are through bearing, rows of digitalis, canterbury bells or other slow-germinating seeds may be planted between the rows, watered thoroughly, and the pea stakes taken down and the vines let down over the seeds. By the time the vines have shriveled, the young plants will be strong enough to stand the sun, and the pea vines may be hoed in to make humus.

Companion Cropping: Plant the long-season crops, such as carrots, parsnips and pepper plants in alternate rows with the short-season crops like radishes, lettuce, peppergrass and spinach. You can plant the rows twice as close together, cleaning out the quick-maturing crops from between the rows, and leaving the long-season crops to mature at their leisure. Sow a double row of beet seed and pull out one row for greens.

Double Cropping: Plant two crops in the same row at the same time—cabbage, cauliflower, tomato, or pepper plants, at regular intervals in the rows of lettuce, radishes, spinach and carrots; a kernel or two of corn between each two potato hills; pepper plants between the dahlias; and radishes, turnips and endive among the corn and tomato rows in late summer. In the rows of seeds that are slow to start, such as parsnips, or small seedlings (onions), or plants hard to see, such as beets, drop a radish seed every three or four inches to show where the rows are. They may be cultivated three or four weeks sooner, so that the weeds are killed before they are big enough to do any damage.

Landscaping the Back Yard

AFTER the garden plan is completed down to the last radish and the last tomato plant, and your gardening soul looks about for new worlds to conquer, why not put some time and thought on those ugly, shabby spots that make you lead the visitor around the other way? "Beauty gardening" of this sort is very satisfying; it is easy, because plants suited to such places are easy to plant and practically take care of themselves; results are quick and sure, for such plants are tenacious and quick-growing; and the effect of a judicious selection and planting of vines, "carpeting" plants, and tall-growing plants for screens is very beautiful.

Screen the Unsightly Objects

Let us take the most difficult place first—the back yard. The view of outbuildings, chicken coops, or of the whole back yard may be effectually screened from yard or garden by a double row of sunflowers, hollyhocks or castor oil beans. The double yellow sunflowers are lovely and unusual, but the immense yield of seeds from the single ones will supply poultry and bird guests all winter. The double salmon-pink hollyhocks are very pretty and will sow themselves year after year.

If you wish to spend more time and money, hedges are very effective—snowberry bushes, with their waxy white berry bunches and dark green leaves; syringa, with its mass of creamy spring fragance; lilac bushes of various shades; or you may stretch a length of wide poultry netting between posts for climbing vines—rambler rose, pink or red, a hardy honeysuckle, the five-leaved ivy with its bunches of purple berries; or you may even plant a row of evergreens or nut or fruit trees. But while these more ambitious shrubs are growing—in your plans or in reality—the coarse-growing annuals mentioned above will make a very effective and appropriate screen for the back yard.

Vines Will Prove Useful

But, I hear you say, our back yard is so ugly, and you can't always stay on the right side of the screen. We had a

(*To Top of Next Page*)

Saving the Christmas Greenery

IT IS always rather a sad time, especially for the children, when Christmas greens and decorations are taken down, and the Christmas tree, of happy sentiment, that such a little time ago was brave and gay, is dragged out and carted away. We like to avoid the heart rending and save our holiday decorations to do duty in other ways throughout the year.

In the first place, if the small trees used for decoration are taken up carefully with their roots and plenty of earth and planted in tubs, a goodly number of them may be saved for planting in the garden the next spring. Ordinary paint kegs painted green make attractive tubs. Larger kegs may be sawed in two.

The larger Christmas tree that held the place of honor in the holiday festivities may be saved in cellar or fence corner to make a "summer Christmas tree." In planting time, strip off the needles and "plant" the tree firmly in some part of the yard or garden, in the center of a well-spaded and fertilized patch of ground. All around it sow seeds of some quick-growing, annual vine-climbing nasturtiums, wild cucumber, morning glories, Scarlet Runner beans with their lovely, cheerful flowers, or the purple-flowered hyacinth bean or *Dolichos*. When the young plants are three or four inches tall, attach strings to the branches of the tree, stretch them to the ground near the plants, and pin them firmly to the ground with a hairpin through a loop of the string. Prune the straggly part from the tree so that it will provide a shapely form for the plants to grow on, and by midsummer you will have a tree that rivals the original in delighting the eyes of children and grown-ups.

Store the tree in the cellar for next year, and by saving each year's tree you may have a variety of arrangements—two or three trees placed tentwise to make a playhouse for the children; a row or group of flowering trees; a screen for the compost heap or other unsightly view; or a summer hedge. The possibilities are legion.

The lesser Christmas decorations all have their later uses. The evergreen branches and berries may be put into the outside window boxes and watered well, where they will freeze and remain nearly as pretty as the summer boxes for the rest of the winter. A few may be fashioned into winter bouquets—the feathery green sprays of hemlock or arbor vitae, with red berries of alder or barberry, or orange berries of bittersweet or mountain ash in a green or brown pottery bowl for sideboard or small table. They will keep better with water.

The rest of the evergreens may be piled around tender shrubs to protect the tops from the rigors of winter winds, and in the spring the dried evergreen branches may be collected and piled to add a desirable crackling to the Fourth of July bonfire!

big pile of "chunk" wood saved for special occasions in the winter, and an old-fashioned hop vine covered it completely. The leaves and the hops are very ornamental and you can almost see it grow. A bottle gourd vine will cover a dead tree in one season, and the fruits are useful. Perennial peas make a shower of bright bloom over an old stump and have the added advantage of staying planted.

The site of a former woodpile is an excellent place for an asparagus bed, because of the rich, black, unused loam. Lay it out in round or rectangular shape and plant cosmos seedlings here and there in the bed. After the cutting season is over the asparagus will grow tall and feathery, dotted all over with the bright cosmos blossoms that grow about the same height as the asparagus. The seedling cosmos will come up year after year.

Gay little morning glories may be trained on strings around the clothes line posts, or, if a permanent vine is desired, a trumpet vine or a wistaria is very pretty. Cuttings of Boston or English ivy, or the more rampant-growing five-leaved variety, will soon cover an old bit of wall or fence. So much for vines.

Making Use of the Rock Pile

If there is a stone pile in your back yard, you have the makings of a rock garden, and part of the beauty of a rock garden is that it can be changed and remade and added to until it is just right. A sunny place is best, away from trees, where the soil is well-drained, as the growth of rock garden plants depends upon sun and good drainage and poor soil.

Dig out the soil about a foot deep and arrange the rocks. Two or three large boulders help the effect, and for the rest, use flat stones of irregular sizes. Make large and small pockets of earth well packed in—not rich earth, only leaf mold mixed with sand—no manure. Bake the soil in the oven before making the pockets to kill the weed seed—quack grass would cause trouble in the garden. Lay the stones tilting back instead of forward so the water will run into the soil instead of away. You can make the garden look higher by planting tall plants on top and creeping plants below, but avoid extremely large plants until your garden is big enough so they will not look lop-sided.

Plant first the native plants that you have at hand, pushing the roots far back into the pockets of earth and covering each pocket entirely with plants. Rock garden plants are sociable creatures and like to grow in colonies. Violets and hepaticas may be taken from wood and field and planted in the shade of rocks or tall-growing plants. The old-fashioned hen-and-chickens that our grandmothers grew over a mound of cobblestones will soon cover the rocks with their little rosettes of pale green, succulent leaves. Daphne Cneorum is a dwarf shrub with evergreen foliage that blooms with pink flowers spring and fall. The wild phloxes are evergreen, compact-growing, and free-flowering—Phlox Subulata Alba, with white blossoms early in spring; Phlox Subulata Vivid is slower-growing but generous with its bright red flowers, and Phlox Subulata Fairy with pale blue, purple-eyed blossoms. The Silene Schafta grows four to six inches high and blooms from July to October. The Gypsophila Repens, a trailing plant of the baby's breath family, produces clouds of pink and white flowers during July and August.

Cover the Barren Spots

A barren spot in the back yard where nothing else will grow will be quickly covered if you drop a piece of yellow myrtle nearby. It is a pretty, hardy vine with small, round leaves and yellow flowers in spring, but be cautious in using it; it will cover acres in a few years.

The blue-flowered myrtle, with darker green, glossy leaves, is less tenacious and makes a very pretty green mat under trees and on banks that are cut under.

English Ivy will grow in shady places and sometimes seems to take more comfort growing over the ground than climbing walls. We put a few squash, gourd or pumpkin seeds near the unsightly pile of coal ashes and it is soon completely hidden.

Michigan Growers to Hear Jardine

WILLIAM M. JARDINE, Secretary of Agriculture under the Coolidge administration, will be one of the principal speakers at the annual meeting of the Michigan State Horticultural Society at Grand Rapids, December 3, 4 and 5.

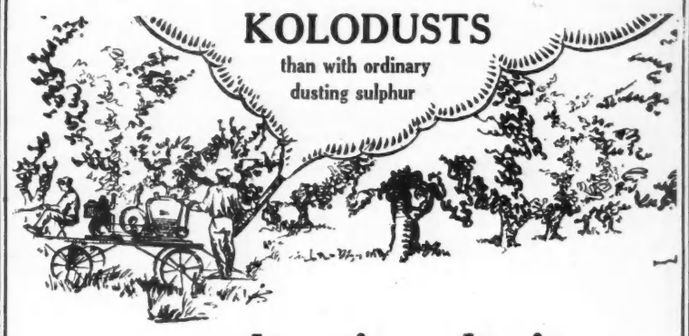
An interesting program has been arranged to occupy the three-day session. Mr. Jardine will address the growers on the afternoon of December 4. Other speakers on the program will be: L. G. Gentner, who will speak on "The Codling moth"; W. C. Dutton, "Some Observations on Spray Injury"; E. C. Auchter, Bureau of Plant Industry, "What Determines the Type of Soil Management, Fertilization and Pruning that Apple Orchards Should Receive"; P. J. Parrott, New York Experiment Station, "Leaf Roller and Rosy Aphis in Relation to Spray Practices"; George Friday, "What Is the Matter with the Farm Problems?"; C. C. Taylor, Louisville, Ky., "The Intelligent Use of Nicotine Sulphate"; Fred Milbourn, president, Michigan Mutual Hail Insurance Company, "Hail Insurance for Fruit Growers"; O. I. Gregg, "Flowery Facts for Farm Folks"; Frank Street, Henderson, Ky., "Some of Our Problems in Growing Apples and Peaches"; J. G. Woodroof, Georgia Experiment Station, "The Peach Situation in Georgia"; James Neilson, "Nut Trees for Pleasure and Profit"; Stanley Johnston, "The Possibilities of the Cultivated Blueberry as a Commercial Crop for Michigan"; R. F. Kroodsma, "Windbreaks, A Necessary Asset to the Fruit Grower"; William A. Ross, Vineland Station, Ontario, Canada, "Combating the Pear Psylla."

10 Times the Protection for your Fruit Crop

with

KOLODUSTS

than with ordinary dusting sulphur



----here's why!

The superior qualities of Niagara Kolodusts are not qualities that you must buy on faith. They can all be demonstrated by simple tests.

THE VASTLY SUPERIOR STICKING QUALITIES of Kolodusts are due to two cardinal principles. In addition to the fact that the super-active ingredient, Bentonite-Sulphur, is sticky and gelatinous when applied to foliage and fruit, it is also a colloid of the irreversible type, THAT DOES NOT WASH OFF.

THE TOXIC QUALITY of Kolodusts is due to its sticking qualities and to the fact that the super-active ingredient Bentonite-Sulphur is so fine that it cannot be seen under the ordinary high power microscope, and there is ample scientific evidence to prove that fineness of sulphur is correlated with its toxic properties.

By toxic properties we mean its ability to prevent the growth of the spores of plant diseases.

It will pay you well to satisfy yourself regarding the merits of Kolodusts. Send for complete information and sample.

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— but your order for immediate shipment must be received by December 31st.

ACT *NOW*!

Meetings of Fruit Growers

AMERICAN Pomological Society meeting will be held jointly with the meeting of the Virginia State Horticultural Society at Roanoke, Va., December 3, 4 and 5.—H. C. C. Miles, Secretary, Milford, Conn.

CONNECTICUT Pomological Society annual meeting will be held at Hartford, December 11 and 12. Annual fruit exhibit will be held in connection with meeting.—H. C. C. Miles, Secretary, Milford.

FLORIDA. Constitution provides that annual meeting of Florida State Horticultural Society shall convene on second Tuesday in April each year unless changed by the executive committee. The executive committee, at its January meeting, always sets the date of the meeting. It is usually in April during legislature years and in May during the off years. The next place of meeting is at Sebring.—Bayard F. Floyd, Secretary, Davenport.

IDAHO Horticultural Association meeting dates have not been set. Meeting is usually held during the month of January but the definite date is not fixed by the directors until later in the season.—M. L. Dean, Secretary, Boise.

ILLINOIS. Annual meeting of Illinois State Horticultural Society will be held at Urbana, December 11, 12 and 13. Annual meeting of northern district of Illinois State Horticultural Society will be held at Rock Island, December 5 and 6.—H. W. Day, Secretary, Centralia.

American Fruit and Vegetable Shippers' Association annual meeting will be held at the Palmer House, Chicago, January 20, 21 and 22, 1930.—E. S. Briggs, Secretary, 1425 S. Racine Avenue, Chicago, Ill.

INDIANA Horticultural Society meeting will be held at Hotel Lincoln, Indianapolis, December 3 and 4.—K. I. Fawcett, Secretary, Lafayette.

IOWA. Sixty-fourth annual convention of Iowa State Horticultural Society will be held at Savory Hotel, Des Moines, December 4 and 5. It is expected that the Iowa Fruit Growers' Association, the Iowa Beekeepers' Association and the Iowa Peony and Iris Society will hold their annual conventions in connection with the horticultural society.—R. S. Herrick, Secretary, Des Moines.

KANSAS State Horticultural Society annual meeting will be held at Atchison, December 4, 5 and 6.—James N. Farley, Secretary, Topeka.

KENTUCKY State Horticultural Society meeting, with the College of Agriculture cooperating, will be held at University of Kentucky, Lexington, December 5 and 6.—W. W. Magill, Field Agent in Horticulture, Lexington.

MARYLAND.—Maryland State Horticultural Society meeting will be held at the Lord Baltimore Hotel, Baltimore, January 7 and 8, 1930.—A. F. Vierheller, Assistant Secretary-Treasurer, College Park.

Peninsula Horticultural Society meetings will be held at Easton, Md., December 5 and 6.—J. F. Adams, Secretary, Newark, Del.

MASSACHUSETTS — Massachusetts Fruit Growers' Association meeting will be held at Worcester, January 8, 9 and 10, 1930. William R. Cole, Secretary, Amherst.

Union Agricultural meetings will be held in the Worcester Armory, Worcester, January 8, 9 and 10, 1930.—William R. Cole, Secretary, Amherst.

MICHIGAN State Horticultural Society meeting will be held in the Waters-Klingman building, Grand Rapids, December 3, 4 and 5. Commercial exhibits of machinery, nursery products, packages and spray materials will be held in connection with meeting.—H. D. Hootman, Secretary, East Lansing.

NEBRASKA State Horticultural Society winter meetings will be held in conjunction with the Organized Agriculture meetings at Lincoln, January 7, 8 and 9, 1930, on the Agricultural College Campus.—E. H. Hoppert, Secretary, Lincoln.

NEW YORK. Seventy-fifth annual meeting of New York State Horticultural Society will be held at Edgerton Park, Rochester, January 15, 16 and 17. A three-day speaking program will be carried out.—Roy P. McPherson, Secretary, Le Roy.

OREGON. Western Nut Growers' Association meeting will be held at Newberg, December 4 and 5.—C. E. Schuster, Secretary, Corvallis.

PENINSULA Horticultural Society meetings will be held at Easton, Md. December 5 and 6.—J. F. Adams, Secretary, Newark, Del.

PENNSYLVANIA State Horticultural Association meeting will be held January 21, 22 and 23, 1930.—S. W. Fletcher, Secretary, State College.

RHODE ISLAND Fruit Growers' Association meets once a year, usually the second Friday in January.—T. H. Matteson, Secretary, Cranston.

SOUTH DAKOTA State Horticultural Society meeting date has not been set. It will be held in Watertown, probably early in January, 1930.—N. E. Hansen, President, Brookings.

TENNESSEE State Horticultural Society annual convention will be held at Hotel Peabody, Memphis, January 16 and 17, 1930.—G. M. Bentley, Secretary-Treasurer, Knoxville.

VIRGINIA. The thirty-fourth annual meeting of the Virginia State Horticultural Society will be held at Hotel Roanoke, December 3, 4 and 5. The American Pomological Society has accepted an invitation to hold their meeting jointly with the Virginia society.—W. S. Campfield, Secretary, Staunton.

WEST VIRGINIA State Horticultural Society meeting dates have not been set.—H. P. Sevy, Secretary, Martinsburg.

XUM

Orchard Operating Costs

TWO DOLLARS a year for each tree is the approximate operating cost of an orchard of 1000 trees in New Hampshire, according to data compiled by H. C. Woodworth and George F. Potter of the New Hampshire Agricultural Experiment Station. This average cost, which includes labor, materials, and use of equipment, is figured on the basis of mature bearing trees, trees about 30 years of age, and is taken from the detailed records for three years of 12 fruit growers.

The average number of man hours of labor consumed in the 12 orchards was 2214, and the average number of horse hours was 863. Spraying proved the most expensive individual operation and the one most difficult to handle because of limited time. Spraying required 384 man hours and 328 horse hours of labor at a total cost of $236 for labor and $300 for materials.

Pruning required the most man hours of labor; the value of the 567 hours of time consumed was $227. Other costs were $108 for the removal of brush, $40 for the application of fertilizer, $134 for tillage, $118 for mowing, $121 for mulching, $20 for rodent protection, $35 for propping, $20 for thinning, $19 for the setting of the trees, and $41 for miscellaneous operations.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of Aug. 24, 1912,

of American Fruit Grower Magazine, published monthly at Chicago, Ill., for October 1, 1929.

State of Illinois, County of Cook, ss.—Before me, a notary public in and for the state and county aforesaid, personally appeared Harry W. Walker, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Fruit Grower Magazine and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are:

Publisher—Magazines, Inc., 53 W. Jackson Blvd., Chicago, Ill.

Editor—Harry W. Walker, 53 W. Jackson Blvd., Chicago, Ill.

Managing Editor—Chester G. Campbell, 53 W. Jackson Blvd., Chicago, Ill.

Business Manager—Harry W. Walker, 53 W. Jackson Blvd., Chicago, Ill.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)—C. A. Tupper, H. M. Sisley, H. W. Walker, J. E. Montgomery (all at 53 W. Jackson Blvd., Chicago, Ill.); Chas. W. Price, Suite 601, 250 Park Ave., New York City; E. G. K. Meister, 1244 Engineers' National Bank Bldg., Cleveland, O.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: (If there are none, so state.) —None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is 'given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

HARRY W. WALKER,
Business Manager.

Sworn to and subscribed before me this 27th day of September, 1929.

(Seal) A. C. BAMBERGER,
Notary Public.

(My commission expires Aug. 10, 1933.)

THROUGH the "MIKE" ... to THE GROWER

Agricultural College Broadcasting Stations

ARKANSAS

Radio broadcast programs will be carried on by the Extension Service of the University of Arkansas College of Agriculture this fall at three stations, KUOA, University of Arkansas, Fayetteville; KTHS, Hot Springs, and KGHI, Marion Hotel, Little Rock.

COLORADO

The weekly programs presented by the Extension Service of the Agricultural College over station KOA are broadcast at 6:30 to 7:00 p. m., Mountain standard time, every Wednesday.—*F. A. Anderson, Director, Extension Service.*

FLORIDA

The University and State of Florida radio station WRUF broadcasts on a frequency of 830 kilocycles. The farm program is given from 1:00 to 1:30 p. m., Eastern standard time, each week day.

ILLINOIS

The University of Illinois radio station WILL is on the air daily, except Saturday and Sunday, from 5:00 to 6:00 and 7:30 to 8:00 p. m. It broadcasts on a wave length of 890 kilocycles or 337 meters.—*F. J. Keilholz, Extension Editor.*

IOWA

WOI is owned and operated by Iowa State College and uses a power of 3500 watts on a frequency of 560 kilocycles, corresponding to a wave length of 535.4 meters. Since last November we have been designated as a daylight station, and divide time with station KFEQ of St. Joseph, Mo. We are broadcasting an address daily except Saturdays and Sundays at 12:45 p. m. This is agricultural in its nature. The talk on Mondays usually deals with animal husbandry subjects; Tuesdays, agricultural economics; Wednesdays, poultry; Thursdays, farm crops, and Fridays, soils.—*W. I. Griffith, Director, Radio WOI.*

KANSAS

Kansas State Agricultural College (KSAC). The wave length of the station is 580 kilocycles or 316.9 meters. Our present schedule calls for a program from 8:00 to 9:00 a. m., 10:00 to 11:00 a. m., 12:30 to 2:30 p. m., and 4:30 to 5:30 p. m. The following horticultural talks will be given by H. L. Lobenstein, Extension Horticultural Specialist:

Dec. 5—Pruning Grapes.
Jan. 30—Varieties of Apples for Kansas.
Feb. 6—Pruning Young Fruit Trees.
Mar. 6—Grapes and Small Fruits Adapted to Kansas.
Mar. 27—Varieties of Stone Fruits for Kansas.
Apr. 3 and 24, May 1 and 22, June 12 and 26—Timely Spray Topics.
Aug. 7—An Orchard Tour.
Aug. 14—Picking Apples for Market.
—*L. L. Longsdorf, Program Director.*

KENTUCKY

The University of Kentucky radio station WHAS broadcasts on a wave length of 800 kilocycles. Agricultural programs on Monday, Wednesday and Friday, 12:45 to 1:00 p. m.—*N. R. Elliott, Program Director.*

MISSOURI

University of Missouri. We do not have a radio station in connection with our school, and do no broadcasting, but we have a radio news service which was inaugurated some six or eight months ago and has proved very successful. This radio news service includes about 1200 words a week, being brief notes concerning the latest development in agricultural science. It is syndicated to four radio stations under a uniform release date. These stations are KFRU at Columbia, Mo.; KMBC at Kansas City, Mo.; KMOX, St. Louis, Mo., and WLS, Chicago, Ill.—*A. A. Jeffrey, Agricultural Editor.*

NEBRASKA

The University of Nebraska broadcasts over KFAB, transmitting on 389.4 meters. The Department of Horticulture will utilize 10 minutes of the Farmers' Half Hour every Tuesday at 12:10 p. m. The subjects to be discussed during December and the speakers are as follows:

Dec. 3—Horticultfire for December, E. H. Hoppert, State Extension Agent in Horticulture.

Dec. 10—Pecans, C. C. Wiggans, Chairman of the Department of Horticulture.

Dec. 17—Sweet Potatoes, H. O. Werner, Professor of Horticulture.

Dec. 31—Lettuce, Prof. Werner.
—*Theodore Diers, Radio Director.*

NEW YORK

Cornell University. We are operating station WEAI, which is owned by Cornell University, and we are broadcasting from it an agricultural program each noon, except Sunday, that is, from 12:00 to 1:00 daily, Eastern standard time. We are also furnishing material more or less regularly for station WHAM at Rochester, WGY at Schenectady, WGR at Buffalo and WCAD at Canton. When the Columbia circuit, through WABC, New York, put on a radio program for farmers, we also furnish copies for that series of stations.—*Charles A. Taylor, Specialist in Extension.*

NORTH DAKOTA

We do not have a radio station, but rent time from our station at Fargo, WDAY. The wave length is 234.2, and the kilocycles, 1280. Farm program, Monday, Tuesday and Thursday, 1:00 p. m.; Wednesday, 7:30 p. m.—*W. C. Palmer, Chairman, Radio Committee.*

OHIO

Ohio State University, WEAO. The wave length is 526 meters or 570 kilocycles. Our agricultural broadcasts will be concentrated largely on Mondays. Each Monday at 12:50 p. m. Prof. C. R. Arnold, of the Department of Rural Economics, gives "Economic Information for Farmers." The Monday night broadcast, beginning at 7:00 p. m., is our Farm Night program. On this program there are six lectures given by members of the College of Agriculture faculty.—*Robert J. Coleman, Publicity Manager.*

OKLAHOMA

KVOO—"The Voice of Oklahoma," Tulsa and Stillwater. Broadcasting Oklahoma A. & M. College "Farmers' Hour" from the Stillwater studio on Mondays, Tuesdays and Thursdays from 12:45 to 1:30 p. m.—*Ernest E. Scholl, Assistant Director.*

OREGON

Oregon State Agricultural College, KOAC; wave length, 545.1 meters; frequency, 550 kilocycles. We operate on the following schedule daily, except Sundays and holidays: 12:00 to 1:15 p. m., 2:30 to 4:30 p. m., 6:30 to 8:00 p. m. Market reports, including fruits and vegetables, are broadcast in the period 12:45 to 1:15 p. m. and 6:45 to 7:15 p. m. These reports are taken from the leased market news wire of the United States Bureau of Agricultural Economics. Seasonal horticultural topics are broadcast each Friday night at 7:15.—*W. L. Kadderly, Program Director.*

SOUTH DAKOTA

The South Dakota State College station has the call letters KFDY. It operates on a frequency of 550 kilocycles with the power of 1000 watts.—*H. M. Crothers, Dean, Div. of Eng.*

TENNESSEE

University of Tennessee. Our call letters are WOBT, and the station is located at Union City, Tenn. They broadcast with 1310 kilocycles.—*J. Paul Phillips, Radio Director.*

WASHINGTON

State College of Washington, KWSC; wave length, 214.2 meters; frequency, 1400 kilocycles. Tuesday, 11:00 a. m. to 1:00 p. m.; Monday and Wednesday, 3:30 to 5:00 p. m., and Monday, Wednesday and Thursday, 7:00 to 9:30 p. m.—*Arvilla Weisel, Program Director.*

WEST VIRGINIA

West Virginia University, over station WMMN, 890 kilocycles. Agricultural programs Saturday afternoons, 4:10 to 4:30. —*Roy Yoke, Alumni Secretary and Program Director.*

WISCONSIN

The University of Wisconsin radio station WHA broadcasts on a wave length of 319 meters and a frequency of 940 kilocycles. Agricultural topics broadcast daily except Sunday from 12:00 to 12:30 p. m.

NBC Farm-Home Broadcast Program

Broadcast daily by the United States Department of Agriculture in co-operation with the National Broadcasting Company. On the air from 12:00 to 12:45 p. m., Central Standard Time.

NBC December Programs

NOV. 30 to DEC. 7—The National Broadcasting Company will maintain facilities to broadcast events in connection with the International Live Stock Exposition at the Union Stock Yards in Chicago during the entire show. In addition to bringing to listeners news of the exposition, it will bring many farm leaders and other prominent persons before the microphone. The broadcasting time during the show will be extended to 1:00 p. m.

DEC. 9—Progress in Barberry Eradication, L. D. Hutton, Bureau of Plant Industry.

Progress in Blister Rust Control, S. B. Detwiler, Bureau of Plant Industry.

DEC. 10—The Garden Calendar, W. R. Beattie, extension horticulturist, Bureau of Plant Industry.

Introducing and Breeding New Varieties of Plants for American Agriculture, Dr. W. A. Taylor, chief, Bureau of Plant Industry.

DEC. 11—The Farm Calendar, Dr. W. J. Spillman, principal agricultural economist, Bureau of Agricultural Economics.

DEC. 12—The Farm Calendar, Dr. W. J. Spillman.

Recent Farm Tax Changes, Eric Englund, in charge of division of agricultural finance, Bureau of Agricultural Economics.

DEC. 13—The Household Calendar, Mrs. Rowena Schmidt Carpenter, assistant to the chief, Bureau of Home Economics.

DEC. 16—The Farm Calendar, W. J. Spillman.

The Price Situation, Dr. O. C. Stine, in charge, division of statistical research, Bureau of Agricultural Economics.

DEC. 17—The Garden Calendar, W. R. Beattie.

Federal Farm Board Program, including "A Week With the Farm Board," Frank Ridgway, director of information; "Opportunities in Co-operative Marketing of Cheese," Tom G. Stitts, co-operative marketing specialist.

DEC. 19—The December Crop Report, Members of Federal Crop Reporting Board.

DEC. 20—The December Crop Report, Members of Federal Crop Reporting Board.

NBC Farm-Home Stations

WBZ, Boston; WBZA, Springfield, WBAL, Baltimore; WHAM, Rochester; KDKA, Pittsburgh; WJR, Detroit; WLW, Cincinnati, KFKX, Chicago; WLS, Chicago; WREN, Kansas City; KSTP, St. Paul-Minneapolis; WEBC, Superior-Duluth; WRVA, Richmond; WPTF, Raleigh; WBT, Charlotte; WJAX, Jacksonville; WIOD, Miami; WHAS, Louisville; WSM, Nashville; WMC, Memphis; KVOO, Tulsa; WKY, Oklahoma City; KTHS, Hot Springs; KPRC, Houston; WOAI, San Antonio; KOA, Denver; KSL, Salt Lake City; WRC, Washington; WOC, Davenport; WOW, Omaha, and WDAF, Kansas City.

Saturdays the following additional stations are added: KPO, San Francisco; KGO, Oakland; KFI, Los Angeles; KGW, Portland; KOMO, Seattle; KHQ, Spokane.

Food Distribution Subject of Radio Talk

PAUL FINDLAY, merchandiser of the National League of Commission Merchants, Washington, has been selected by the management of the Bankers' Industrial Exposition to deliver the radio-broadcasted talk on "Your Dinner, Your Grocer and You" on Grocers' Day, December 10, from Station WRNY, New York, at 12:30 p. m.

Findlay is perhaps the best posted man in the country on the grocery business as a whole. He has "served his time" as a practical grocer, having spent more than 25 years behind the counter. Since he retired from grocer-activity, he has devoted himself to an intensive study of the food business in all its aspects—from producer all along the line to consumer.

Because of his intimate knowledge of the food business, he was selected some years since by the California Fruit Growers' Exchange to cover the entire country in the interest of improved merchandising of Sunkist fruit; and so successful was he in this special work that he was delegated to do similar duty for Wenatchee apples and California prunes. Last December he was called on by the National League of Commission Merchants to carry on a campaign of improvement in the retail merchandising of perishable products.

Everybody interested in food distribution should certainly "listen in."

Lee Strong to Head Federal Plant Control

THE APPOINTMENT of Lee A. Strong of California, to be chief of the Plant Quarantine and Control Administration, was recently announced by the United States Department of Agriculture. Mr. Strong, who is assistant director of agriculture of the State of California, was formerly connected with the federal department as a specialist in plant quarantine work and previous to that had been associated with the Federal Horticultural Board as a collaborator. In addition to his position as chief of the Plant Quarantine and Control Administration, he will serve ex-officio as chairman of the advisory Federal Plant Quarantine Board, made up of representatives of several bureaus of the department.

Mr. Strong is a native of Iowa, but has lived in California for many years.

Dr. C. L. Marlatt, who has been filling the two positions of chief of the Bureau of Entomology and chief of the Plant Quarantine and Control Administration since July 1, 1928, retires at his request from the latter position in accordance with a plan which was authorized some two years ago.

Dr. Marlatt was responsible for securing the passage of the Plant Quarantine Act of 1912 and since that time has been in charge of the administration of the Act as chairman of the Federal Horticultural Board and, since 1928, as chief of the Plant Quarantine and Control Administration.

Northwest Growers Organize Council

REPRESENTATIVES of six associations of the Pacific Northwest, with a combined membership of 4653 growers, have organized as the Northwest Council of Apple Co-operatives to establish a contact with the Federal Farm Board.

"The council purposes to act as a medium to establish a closer contact with the Federal Farm Board to insure the co-operation of this organization," said J. Walter Hebert, general manager of the Yakima Fruit Growers' Association.

The welfare of the member associations and their grower members will receive their attention. Also all industrial problems of general interest and pertaining to grower members and organizations will be handled by this body.

The apple shippers have definitely pulled against the formation of a stabilization corporation which might jeopardize the large export business of the Pacific Northwest industry by loading foreign markets under government control with surplus production.

The council, however, feels that a closer contact with the Federal Farm Board will further the welfare of the apple industry, since their activities tend along lines that are in sympathy with the developments planned for the good of the industry.

Needs of Fruit Fly Work

PETER O. KNIGHT of Tampa, Fla., advisory counsel for the Florida citrus industry, after a conference at the White House, said that President Hoover had assured him of adequate financial co-operation from the federal government to continue the fight on the fruit fly, the pest that is menacing the Florida citrus industry.

Mr. Knight stated that great progress has already been made in this direction. In fact, not a single fly has been discovered in Florida since August 3, and since August 27 there has been no trace of this pest.

According to Mr. Knight's report, no infestation ever occurred in Florida in any vegetable crop and the present citrus crop has been untouched. He declared that none of the infestations that occurred were among commercial crops or fruits and that of the few that were detected only eight were found in citrus fruits and these were sour orange and guava trees too isolated to be treated.

However, Mr. Knight asserted, in order to continue the inspection and eradication so successfully begun, adequate funds must be provided and that the appropriation of $26,000,000 recommended by Arthur M. Hyde, Secretary of Agriculture, is imperative if the work is to be uninterrupted.

T. J. Talbert Honored

BY HIS election as district governor of Kiwanis Clubs, T. J. Talbert of the Missouri College of Agriculture becomes the directing officer of his organization in three states, Missouri, Kansas and Arkansas. He was elected without an opposing vote at the district convention of Kiwanis Clubs at Hot Springs, Ark. His elevation to this office follows a record of 10 years of civic service in the organization and the successful discharge of the responsibilities of president of the Columbia Club, district trustee, international delegate, and lieutenant governor.

At the Missouri College of Agriculture Prof. Talbert is chairman of the department of horticulture and professor of horticulture, positions which he has had since September, 1922. He is a native Missourian, having grown up on an Ozark farm near Cassville in Barry county. He was graduated from the Missouri College of Agriculture in 1913 and has been a member of the faculties of the agricultural colleges of both his home State and Kansas. During the World War he was executive secretary Missouri Division United States Food Administration and he was later acting food administrator during the absence of the administrator, F. B. Mumford, on an Allied mission to Europe.

Japanese Beetle Enters New Areas

AT THE MEETING of the National Association of Commissioners, Secretaries and Departments of Agriculture in Washington on October 29, Dr. C. L. Marlatt of the United States Bureau of Entomology stated that the Japanese beetle is gradually infesting districts not heretofore menaced.

He said that the spread of the beetle this year from the infested districts of New Jersey and eastern Pennsylvania has been moderate, although it is now found 40 or 50 miles from the original infested area. The plant quarantine and control administration is working to get control of all infested districts.

First Apple Tree of the Northwest

IN THE Vancouver Barracks, State of Washington, there stands an apple tree of more than ordinary importance. Its history is so interesting that Bancroft, the noted historian, says in regard to it: "At a lunch party in London, about 1825, given in honor of some young gentlemen who were about to embark for Fort Vancouver, in the employ of the Hudson Bay Company, seeds of the fruit eaten were slyly slipped into the waistcoat pockets of the young men by some of the ladies present, and upon their arrival at their destination, the young men, in overhauling their wardrobes, discovered the seeds and gave them to Bruce, the gardener, at the Fort."

It is said that the seeds planted by the gardener produced several trees, and these were pointed out as the only apple trees in the Northwest. In the course of time all the trees, with the exception of one, disappeared.

It was largely through the horticultural inspector of this district, A. A. Quarnberg, that the tree was discovered and identified. In 1911, Mr. Quarnberg wished to have a gavel made of wood from this tree for the Washington State Horticultural Association, and, upon examining the tree he found it infested with San Jose scale, half its branches dead, and in a bad condition generally. On February 20 and 21 of this same year the tree was pruned and all dead branches and brush removed, the rotten wood in the trunk and branches cleaned out and filled with plaster of Paris and cement, and all cuts painted. Later it was sprayed and a good coat of manure applied at the roots.

The tree is evidently a Yellow Bellflower seedling. In 1915 the Department of Agriculture at Washington requested Mr. Quarnberg to send them specimen apples for making wax forms. The picture on page 22 shows the tree after it was trimmed.—*H. E. Zimmerman.*



BEAN Triplex No. 726

A popular BEAN for medium-size orchards. Capacity 10 gals. per minute at 300 lbs. pressure. Sturdy. Rugged. Dependable in every way.



BEAN "All Purpose"

Designed for potatoes and other truck crops, but quickly converted into an orchard sprayer. Adjustable to rows of any width.



BEAN Power Duster

Mixes its own dust, thus cutting the cost of material in half. *Equipped with* BEAN *engine.* Simple, efficient, economical. For truck crops and orchard work.

ADD DOLLARS to your 1930 Crop

Put a new big-capacity high-pressure 1930 BEAN Sprayer on the job and give the pests in your orchard a real licking this year. You'll get more extra fancy fruit, top price for your crop, and many extra dollars of profit.

These new outfits are built like a fine automobile. Every part carefully finished and fitted (removable and interchangeable). The sturdy slow-moving BEAN pump resists wear. Wide eccentrics instead of cranks. Indestructible porcelain-lined cylinders, trouble-less ball valves, absolutely dependable pressure regulator. No stuffing boxes or stuffing box troubles.

Freed from friction, wear, and waste of fuel and power by Adjustable Timken Tapered Roller Bearings. Many other vital features.



BEAN ORCHARD AND CROP SPRAYERS

Sign and Send This Coupon

—for complete CATALOG and name of your nearest BEAN dealer . . . . .

JOHN BEAN MFG. CO.
Division of Food Machinery Corporation
15 Hosmer Street, Lansing, Michigan
104 W. Julian Street, San Jose, California

Please send me your 1930 SPRAYER CATALOG.

*No. of acres*_____ *Kind of fruit*_____

*Name*_____

*Address*_____



Baskets for Apples, Peaches, Plums, Grapes, Tomatoes, Cucumbers, Beans, etc. Boxes and Crates for Berries, Cucumbers, Celery, Cauliflower and vegetables of all kinds. Plant boxes.

Catalog mailed on request

The Pierce-Williams Co.
South Haven, Mich., or Jonesboro, Ark.

PUZZLE—Send your name and address and get a new and different puzzle **FREE**—one that appeals to your imagination—more fun than a crossword puzzle. If you are good at puzzles, you may win a 1930 **Dodge Six Sedan** or one of 24 other prizes to be awarded in a great advertising campaign.
WESTERN NEWS CO., 1944 Hazel St., Salem, Oregon

IS THERE ANYTHING YOU WANT TO BUY or sell? Need help? Want a position? For results advertise in the American Fruit Grower Magazine classified section—for only 15 cents per word you get your message before 275,000 readers. Send cash with order.

NO HILL TOO STEEP — FRUIT-FOG HAYES SPRAYERS — NO SAND TOO DEEP

Follow safely wherever team or tractor travel; light traction in deep sand or mud. Short turn for close work.

4 sizes—100, 150, 200, 300 gallon tanks with 1 to 3 gun capacities. All have famous "Fruit-Fog" guns—reach topmost branches with mist-like spray that drifts into every niche where air can go. Thousands claim HAYES are best. 50 years of pump building experience back of every one. 1930 model "Fruit-Fog" guns have Monel metal discs (last 6 times longer). Don't buy until you read HAYES free literature, showing 50 styles in hand and power types. Write for it.

HAYES PUMP & PLANTER COMPANY
Dept. 930 Galva, Illinois



HAYES Master Pumps
Heavy duty for stationary spraying. Capacity 35-40 gal. per minute. Pressure, 400-600 lbs. Write for facts.



ALL THE CHRISTMAS PLEASURES

THEY'RE ALL here at Chalfonte-Haddon Hall—those time-honored Christmas pleasures. Carols to awaken you, a filled stocking for every child, gifts for the ladies—and a turkey to your own family, at your own table, the attention of your own interested waitress—just as at home. Also, sun rooms and card rooms, Sandy Cove, the playroom for children, and deck chairs overlooking the ocean. Everything for a comfortable, merry Christmas. Make it a family party for the whole week. Write for rates and literature. A Motoramp garage adjoins the hotel.

CHALFONTE-HADDON HALL
ATLANTIC CITY
American and European Plans
Leeds and Lippincott Company

Read the advertisements—those guide posts to better things

Classified Advertisements

ADVERTISING RATES, 15 CENTS A WORD
Write advertisement on separate sheet. Please enclose cash with order. For advertisements addressed in care of this publication, allow 5 words for address.

SPECIAL NOTICE
All advertising copy, discontinuance orders or change of copy must reach this office by the 10th of this month for next issue.

Address
AMERICAN FRUIT GROWER MAGAZINE
53 West Jackson Boulevard, CHICAGO

AGENTS-SALESMEN WANTED

WE START YOU WITHOUT A DOLLAR. Soaps, extracts, perfumes, toilet goods. Experience unnecessary. Carnation Co., 278, St. Louis, Mo.

WE PAY $45 A WEEK AND EXPENSES AND give Ford auto to men to introduce poultry and stock compounds. Imperial Co., D-20, Parsons, Kans.

$12.00 DAILY SHOWING NEW LINEN-LIKE tablecloth. Washes like oilcloth. No laundering. Sample free. Bestever, 666 Irving Park Station, Chicago.

WILL FINANCE MARRIED MAN, 25-60, GOOD appearance, fair education, in a paying business of his own. Profits not large to start with, but will increase as you learn the business. Must furnish A-1 references and have car for delivery. Make application in own handwriting to McConnon & Company, Room C-1412, Winona, Minn.

$200—$500—$1000! HOW MUCH DO YOU NEED? I'll show you a simple, easy way to make the money you want. Wonderful new proposition. Albert Mills, 3824 Monmouth, Cincinnati.

DOGS FOR SALE

COONHUNTERS, DEPOSIT $45.00 AND TRY MY four-year-old coonhound with the record of five coons in one night. O. K. in every way. I pay express. Bob Finley, 8204, Charleston, Mo.

HUNDRED HUNTING HOUNDS CHEAP. TRIAL. Literature free. Dixie A-3, Herrick, Ill.

FARMS AND ORCHARDS

640 ACRES ORCHARD AND STOCK RANCH. Junction two state roads. 1500 apple trees in bearing, set buildings. Price $12.50 acre. T. W. Campbell, owner, Dixon, Mo.

WIDOW'S ORCHARD, 1839 BEARING TREES, 75 acres. Big sacrifice. Particulars. Write Valley Realty Agency, 461 Waverly St., Waverly, N. Y.

OZARK FRUITS AND BERRIES FIND A READY national market. Every year thousands of cars of strawberris, grapes and fruit are shipped to all parts of the country. The size and quality of Ozark crops are due largely to ideal growing conditions in this famous region of Southern Missouri and Northern Arkansas. Gentle slopes. Gravelly clay soil, abundant rainfall, mild winters, early springs and central location assure excellent returns. Poultry farmers and general farmers also enjoy excellent production and marketing facilities. Pure spring water. Healthful climate. Growing communities and resorts. Good schools. Hard roads. Ideal homeland. Write for full information. C. B. Michelson, Colonization Agent, Frisco Lines, 852 Frisco Bldg., St. Louis.

FARMS WANTED

WANTED—HEAR FROM OWNER HAVING good farm for sale. Cash price, particulars. John J. Black, Chippewa Falls, Wis.

WANTED—TO HEAR FROM OWNER OF LAND for sale. O. Hawley, Baldwin, Wis.

FUR RABBITS

MAKE BIG MONEY WITH CHINCHILLA Rabbits. Real Money Makers. Write for facts. 846 Conrad's Ranch, Denver, Colorado.

HELP WANTED—INSTRUCTION

WANTED IMMEDIATELY, MEN-WOMEN, 18-55, qualify for steady government positions; $105-$250 month; common education; no government experience required; vacations with pay; many needed soon. Write, Instruction Bureau, 259, St. Louis, Mo., quickly.

RAILWAY POSTAL CLERKS. $158-$225.00 month. Steady. Spring examinations likely. Common education. Men, 18-35. 25 coached free. Write immediately. Franklin Institute, Dept. E-70, Rochester, N. Y.

BE AN AUCTIONEER. EARN $25-$100 DAILY. Send for large illustrated catalogue, also how to receive Home Study Course free. Reppert's Auction School, Box 67, Decatur, Ind.

MECHANICAL FERRET

THE "SCREW-BUG"! RID YOUR ORCHARD of rabbits and other burrowing animals by using the "Screw-Bug," a mechanical ferret. Five days' trial. Money back guarantee. $4.00 each with order, or collect. Free circulars. The Grabow Co., Dept. F., Franklin Square, L. I., New York.

NURSERY STOCK

PEACH AND APPLE TREES, $5.00; $7.50 PER 100 and up. Yellow Delicious and Blood Red Delicious apples. In small or large lots. Plums, pears, cherries, grapes, nuts, berries, pecans, vines, ornamental trees, vines, evergreens, shrubs. Free catalog. Tennessee Nursery Company, Box 101, Cleveland, Tenn.

BEST VARIETIES, APPLE AND PEACH TREES low as 5c, grape vines 3c, ornamental shrubs 10c, evergreens 25c. Catalog free. Benton County Nursery, Box 100, Rogers, Ark.

POSITION WANTED

WANTED—POSITION AS SUPERINTENDENT of apple orchard, 40 or more acres. Give in particulars equipment, varieties, age and average yield. Dewey McFarland, Rte. 1, Culver, Indiana.

POULTRY

CHICK PRICES CUT 7½ CENTS IF ORDERED now for spring shipment. Best egg strain White Leghorns. Records to 320 eggs. Pay when you get them. Guaranteed to live and outlay ordinary chicks. Low prices on pullets, hens, cockerels, hatching eggs. Catalog and bargain bulletin free. George B. Ferris, 922 Union Ave., Grand Rapids, Mich.

CULLS & OVER-RIPES

The bigger the bankroll, the tighter the rubber band.—*Arizona Republican.*

A flying rumor never has any trouble in making a landing.—*Mobile Register.*

We often wonder how George Bernard Shaw would be at advertising something else.—*Minneapolis Journal.*

It is said the sun never sets on Wrigley's gum. But, unfortunately for mothers, some sons do.—*Detroit News.*

Too many college boys would rather make the grade in their roadsters than in their studies.—*Springfield Union.*

About the only danger we can see for the new baby auto is that a microbe might choke the carburetor.—*Hollywood Citizen.*

In London they have a machine that sells a collar button for a penny. We'll bet a dollar to a dime that the button rolls under the machine. — *Arkansas Democrat.*

It is said that the John Coolidges received five electric roasters. Well, this should help Florence make it hot for John if he wants to sleep late in the morning.—*Los Angeles Express.*

Hush money sometimes talks the loudest.—*Miami Herald.*

A used car is seldom what it's jacked up to be.—*New Haven Register.*

A bargain sale—where the sweet buy and buy.—*Christian Science Monitor.*

We hope that the Noise Commission will make itself heard.—*New York Evening Post.*

Virtue is its own reward, but there is the further satisfaction of needing no aspirin next morning.—*Newark (N. J.) Ledger.*

The ancients had a city of sanctuary where the pursued found safety—something like a persecuted fly alighting on the new wall paper.—*Tampa Times.*

Then there was the aviator's wife who insisted on accompanying her husband on his flights, so that she could go through the air pockets.—*Hartford Courant.*

The biggest joke on the advertising men is the way kids become candy-conscious long before they learn to read the magazines and billboards.—*Boston Transcript.*

John D. Rockefeller is quoted as saying that he has never met a bad character on the golf course. That is one advantage, of course, of playing on a strictly private course.—*Denver Post.*

No stocking is yet advertised as best in the long run.—*Arkansas Gazette.*

Our dictionary is funny. It says the dumb can't talk.—*San Francisco Chronicle.*

New Varieties for Old

(*From Page Six*)

for good work. A small piece of adhesive tape wrapped around the thumb on the right hand may protect it from injury. This "ounce of prevention" is a wise precaution. Even a slight cut will cause the grafter to favor the injured digit, reducing the scion-cutting speed.

I have found the following method (as shown in one of the illustrations) of holding both hands close against the chest when cutting scions easy for growers to master. First cut off the scion stick about an inch and a quarter below what will be the lower bud on the scion. Make the cut, starting just below the bud, with a quick straight draw of the knife. Roll the scion stick over quickly in the left hand and cut the other side of the scion in the same way. Cut the scion from the scion stick above the third bud and start again. Hurry up. The pockets of a carpenter's apron will be found convenient for carrying the scions.

Time of Grafting

TWO MEN can work together to advantage in top-grafting. The more experienced one should cut the scions and "set" them, while the other prepares the stocks by sawing off the limbs to be grafted. He should also apply the wax.

As scion-cutting is a bare handed job, it is a distinct advantage if the better weather of the spring months can be chosen for this work. The ideal time for cleft grafting is just as growth starts in the spring. It can, however, be done several weeks earlier or later. The scions must be dormant but the stock need not be. Cleft-grafting can be practiced with success as late as blossoming, providing the scions have been kept dormant.

Selection of Branches for Grafting

FOR PRACTICAL purposes, branches ranging from three-quarters inch up to two and one-half inches in diameter are best for cleft-grafting. Select well placed branches with the idea of shaping the tree. Often if is the tendency of beginners to set grafts in side branches or weak growing ones near the ground, where they make a feeble and unsatisfactory growth. Don't be afraid of hurting your tree. Set grafts in the upright, vigorous growing branches and you will be pleased with the growth they make. Choose stocks two inches in diameter as near as possible, on which a lateral or side branch can be left to serve as a "feeder" for a year or two until the grafts are well established. In all cases one should endeavor to select branches that will keep the new fruiting wood low; however, anxiety to gain lowness should not lead one to graft stumps that cannot be made to heal over properly.

To lessen the hazards of sunscald to the scaffold branches or of fire blight attacking the scions, the top-working operation should be carried on over a period of two or three years. Trees of approximately a 10-year-old size or smaller can generally be completely worked over in two seasons. The first year grafts should be set in about 60 per cent of the stocks to be grafted. It is generally advisable the first year to leave several branches untouched on the southwest side of the tree so that the scaffold branches on the north and east sides of the tree may be protected from sunscald. This is not of so much importance on trees that are very brushy.

In all modified leader type of trees the leader should be grafted the first year. In very large trees in which it is necessary to carry on the top-working operation over a three-year period, one-third to one-half of the main leader or upright branches should be grafted the first year.

Setting the Scion

WHEN scions are to be set in an upright growing stock, the cleft may be made in any direction; but stocks on branches that grow out at an angle should be split horizontally and not vertically as is sometimes done. It is always well to look at the stock closely, selecting a place where it will split straight before the clefting tool is used. This precaution will expedite the setting of the scions.

Scions should be cut for grafting as they are used. Don't try to cut too many ahead, especially on a windy day. When 30 to 50 have been cut, set and wax them. Two scions of about equal size should be selected and set in each stock. Use the larger scions on the thicker stocks.

In setting a scion, open the cleft with the sharp point of the clefting tool. Keep the left hand on the handle of the tool so that pressure can be gently applied to open the cleft wider if necessary. Insert the scion carefully and set at a slight outward angle with the general direction of the branch so that the cambium layers of the stock and scion are in close contact. Further, the contact should also be near the top of the stock to avoid knobby unions. The cambium layer is a very thin layer of green-growing tissue found next to the wood. It is the layer in which growth takes place. Be careful not to move the first scion while setting the second.

PRINTING
250 BOND LETTERHEADS, ENVELOPES, BUSINESS cards, $1.25 each. E. T. Johnson, 17 Federal St., Worcester, Mass.

SONG POEM WRITERS
SONG POEM WRITERS. "REAL" PROPOSITION. Hibbeler, D-96, 2104 N. Keystone, Chicago.

TOBACCO
OLD TOBACCO: SMOKING, 10 POUNDS, $1.20; chewing, $1.75. 100 cigars, $2.50. 30 twists, plugs, bags, $1.75. Farmers' League, Watervalley, Ky.

TREE PROTECTOR
"SAVTREES" — SOMETHING NEW. USE against mice and animals. Write George J. Weber, Attleboro, Mass.

Index to Advertisements

The concerns whose advertisements appear listed below are equipped to give prompt and satisfactory service to the American fruit grower. Most of them issue literature that is freely at the disposal of our subscribers. It is to the advantage of all that when writing to an advertiser you use the address exactly as it appears in the advertisement, and that you state in your letter: "I read Your Advertisement in AMERICAN FRUIT GROWER MAGAZINE."

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Farm Board Organizing National Fruit Agency

IT HAS BEEN announced that the Federal Farm Board is negotiating with fruit and vegetable growers and sellers for the establishment of a national fruit and vegetable commodity agency.

The board, represented by Charles C. Teague and Charles S. Wilson, has so far made only preliminary plans through correspondence and oral discussions with those interested in such a corporation. However, as soon as sufficient co-operation has been assured to warrant calling a conference of representatives of fruit and vegetable growers, the board expects to take more definite steps in the creation of the national marketing organization to serve this field.

On Their Way Home -- Toward Meal-Time

(*From Page Five*)

from about one million of Chicago's three million population. During the rush hours, the street cars passing the door discharge constant streams of passengers from downtown at two to four-minute intervals. A block to the south is one of the largest local traffic terminals on the north side elevated. And the trend of settlement and population is to the north.

We have a corner location, facing Broadway, almost in the shadow of the "north side" elevated railway structure, which crosses Broadway on a long diagonal in front of the store. Our floor space is 20 by 70 feet, the rear 20 feet partitioned off to allow space for storage and for a 10 by 10-foot refrigerator. All but the space actually necessary for customers' and clerks' use is utilized for display counters, bins, banks and shelves.

There are two objects in the arrangement of every piece of our store equipment: to display fruits and vegetables to best advantage, and to sell them.

The "Average" Day

OUR TRADE in the morning consists of housekeepers uptown for the morning's cash trading. From 10 to noon, the flow of buyers is steady, with the last hour a "rush."

Shortly after lunch, the transient trade from housekeepers again picks up and is augmented towards mid-afternoon by the crowds leaving the first afternoon matinees at two large theaters. At five, the second shows pour out their thousands and are joined by the multitudes of homeward bound workers from downtown. This latter flow continues until well after six o'clock.

From 8:30 to 9:30 when the first evening shows are over, we get a rush hour in fruits for the after-the-show lunches at home. We close at 10. The outpourings from the late shows are not buying fruit; they are either sleepy and ready for bed or hungry and headed for restaurants.

The Season Begins in January

ALTHOUGH the retail fruit and vegetable trade is continuous throughout the year, we figure the season as starting with the arrival of southern strawberries in late December and early January. The winter business depends primarily on the sales of oranges, apples and bananas, about in the order mentioned. The orange is our main dependence. Persistent advertising of this fruit has made it a dependable seller. The California Navel is the favorite dessert orange. For juice purposes, the Florida Russet is gradually taking the market away from the California Valencia. And the sales of both dessert and juice oranges show a healthy increase from year to year.

Effect of Increased Banana Sales

THIS is also true of the banana, the sales of which have shown a decided increase during the past five years. The retail price ranges from 29 to 40 cents a dozen. At the former price, we can feature them as a window special.

I have never been able to see that bananas have affected apple sales in any way. The two are in different classes. But bananas, if cheap, do help the sale of oranges, berries, peaches, pears and the like. When we can feature in our windows, "Bananas, 29c doz.," we do a brisk trade and can build up the purchase with other dessert fruits. The increase in our sales of peaches, pears and all kinds of berries during the past five years has almost, not quite, kept pace with the increase in our sales of bananas. This is probably helped by the type of banana advertising that appears during the summer months. The continued increase in our orange sales we attribute to the orange advertising.

Some Observations on Strawberries

OUR FIRST strawberries come from the Gulf States, particularly Louisiana, and arrive usually just after the holidays. Even at the top price of 75 cents a quart, they move freely, the sales increasing as the price drops by successive stages through the early season to 30 cents a quart when the Kentucky Wonders arrive and for which buyers ask weeks after they are gone. Illinois produces good strawberries, Wisconsin the best; large, bright red berries of tasty quality that sell most freely of all and at 25 cents a quart. The strawberry season finishes in July with the Washington stocks.

One word describes the general run of Michigan and Tennessee strawberries that appear on the Chicago market: SAND. In addition to being sandy, too much of the Tennessee stock is small, unripe and of miserable color. It may be that the good stock is handled in those States by associations with outlets in the smaller cities. This can happen. For instance, we get few grapes from the nearby Lawton, Mich., district. Those grapes appear to go to other markets. But grapes are always cheap in Benton Harbor, just across the lake. It is the general talk around the Market that in a normal season the buyers from our Chicago and other wholesale houses can almost name their own price on the Benton Harbor cash market by slowing up on buying now and then for a few hours a day.

Prohibition, and Grape Sales

FOR THE FIRST three years after prohibition, we could not secure enough grapes to fill the demand, though I think that demand actually declined after the first year. Many discovered with their first attempt that fermented wine cannot well be made in an apartment. Most of the home-made fermented product either turned to vinegar or blew up in the apartment house refrigerators. Folks got discouraged.

With us the demand for grapes is now at a standstill, except for the Thompson Seedless and the Tokays. The Concord has its friends and sells well both in the four-quart and the 12-quart baskets. Most of this stock comes from the lake shore district of Michigan, retailing at 18 to 25 cents for the four quarts and 40 to 50 cents for the 12-quart baskets. After this stock is off the market, we get from 10 days to two weeks of Chautauqua-Erie grapes which sell at 30 to 40 cents per four-quart basket and 80 to 90 cents for the 12-quart basket, as long as their season lasts. This is probably on account of the attractive appearance of this pack and the lateness of the season.

Dessert Fruits in Quart Containers

PEACHES, pears and the like sell best when repacked in the long quart berry box, which serves more as a display tray than as a package. Such a box will hold nine peaches, three on the bottom, six on the top, and sells readily the season through for 25 cents. Up to this year, the Georgia supply has kept the cost of peaches down from the opening of the peach season, and the tremendous oversupply has affected the northern peach market until the season's end. The peach is a tricky fruit. A few hot days during harvest will apparently ripen the fruit in many nearby States and congest the Chicago market with ripe peaches. The market, of course, goes to pieces. But peaches retail at nine for a quarter.

Fruit Sales Increasing

WITHIN the seven years we have been located here, six other stores handling fruits and vegetables have become established within a few blocks of us. During this period our first year's sales of $87,000, about one-third wholesale, have been increased to $106,000 the last year, practically all retail. This does not mean that the consumption of fruits and vegetables has increased in like proportion. People are eating more of both every year, but our increase comes from congestion of population. The higher the apartment buildings go into the air, the more people pass on the streets. These people are our customers, particularly when on their way home toward meal-time.

AMERICAN POMOLOGICAL SOCIETY

81st Annual Meeting in Conjunction with the

Virginia Horticultural Society

Hotel Roanoke

Roanoke, Virginia
December 3, 4 & 5

A strong program includes discussion of cultural practices and economic problems of importance to all apple and peach growers throughout the country by a group of speakers of national reputation:

Some Program Features

Dean H. L. Price, Virginia Polytechnic Institute, Blacksburg, Va....."Our Horticultural Problems"
Dr. J. C. Blair, Illinois Agricultural College, Urbana, Ill., President American Pomological Society.."President's Address"
Dr. J. F. Adams, Delaware Experiment Station, Newark, Del. "Foliage Injury in Relation to Spray Materials and Plant Diseases of the Peach"
Dr. L. A. Stearns, Entomologist, Ohio Experiment Station, Wooster, Ohio....."Recent Developments in Oriental Fruit Moth Control"
Governor Harry Flood Byrd....."Our Apple Industry"
Wm. Harper Dean, Agriculture Specialist, U. S. Chamber of Commerce, Washington, D. C....."What Is Ahead for American Agriculture?"
Dr. E. C. Auchter, Chief Horticulturist, U. S. Department of Agriculture, Washington, D. C....Subject to be announced
Dr. A. J. Heinicke, Department of Pomology, College of Agriculture, Ithaca, N. Y..."Factors Affecting the Set of Fruit"
Dr. John Magness, in charge of Horticulture, Washington State College....."Apple Growing in the Northwest"
Prof. R. A. Van Meter, Massachusetts Agricultural College .."Some Developments in the New England Fruit Industry"
Dr. W. S. Hough, Winchester Field Laboratory, Winchester, Va....."Spray Injury on Apples"
Prof. R. H. Hurt, in charge of Staunton (Va.) Field Laboratory....."Calcium Sulphide"
Henry M. Taylor, Agricultural Statistician, Richmond, Va.
Dr. C. P. Close, Pomologist, U. S. Dept. of Agriculture.... .....Report on Varieties, A. P. S.
Dr. Freeman Mason, Pennsylvania Agricultural College, State College, Pa....."Some New Sources of Nitrogen for the Orchard"
J. H. Meek, Director of Division of Markets, Richmond, Va. "Market Activities in Connection with the Apple Industry"

The Apple Variety Exhibit

An interesting feature of the meeting will be a non-competitive apple exhibit displaying the leading commercial varieties as produced in different apple growing sections of the country. It will be a wonderful opportunity to study the different types of commercial varieties as they are produced in different sections. Be sure to see this show. It will help guide you as to whether you are able to produce as good quality fruit as your competitors are producing.

Industrial Exhibits - Equipment - Packages, etc. in Exhibit Hall

Come to the meeting and hear the discussions and exchange views and information with fruit growers of other sections of the country.

American Pomological Society

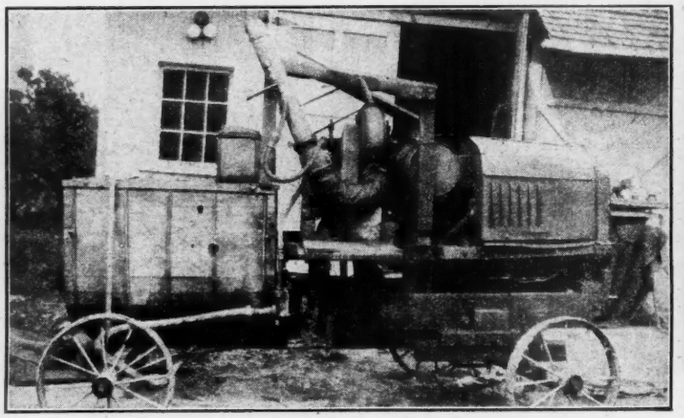
H. C. C. MILES, Secretary, Milford, Conn.

WHAT THE CAMERA SEES

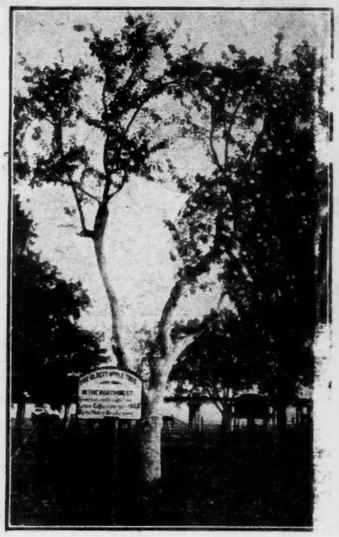
AMERICAN FRUIT GROWER MAGAZINE will pay Five Dollars for the photo selected each month as the PRIZE PHOTO, and will pay One Dollar each for other photos not receiving the prize money but which we are able to use. Send your photo, illustrating anything of interest to the fruit grower, with a short item telling the FACTS about the picture. Address photos to the Editor. If not suitable for our use, your photo will be returned.



Five-year-old apple tree in orchard of Mr. and Mrs. W. A. Albright, Brazil, Ind., yields a bushel of choice apples.



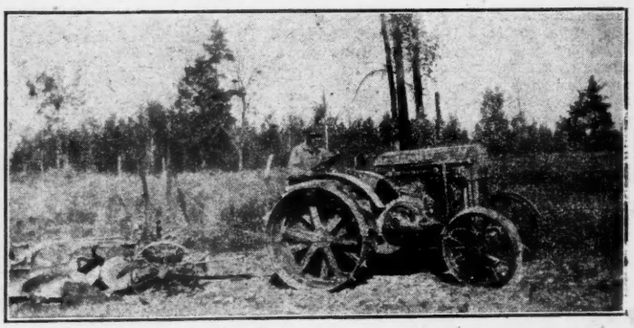
This "grand-daddy of the Liquiduster" was designed and built six years ago by F. H. Kelley Ilchester, Md., and has given good service ever since. The spray liquid is pumped at low pressure into the blower pipe, from whence it is discharged by a blast of air from the high speed fan. Photo by A. F. Vierheller, College Park, Md.



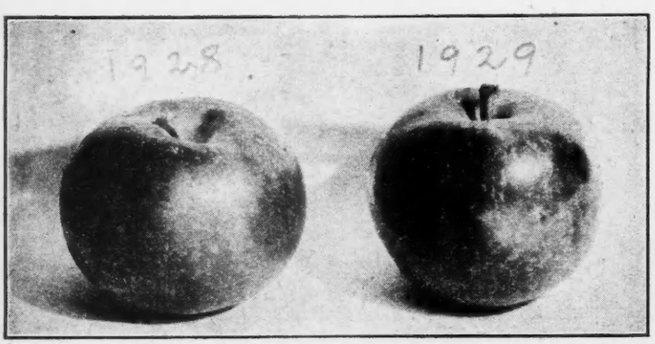
This Yellow Bellflower apple tree is, so far as known, the oldest apple tree in the Pacific Northwest, according to story elsewhere in this issue.



A "tunnel of grapes" on the farm of August Beall, Hyattsville, Md., from which many bushels of grapes are picked each year.



Plowing is done in a hurry, as compared with the days of old, if tractor equipment is used on the job. So thinks Joe Tom, Phillips, Wis., on the job in this picture. Sent by Francis Tom.



Yes, the Winesap is a "good keeper," if we are to judge from the above picture of a Winesap of 1928 kept in common storage, compared with a Winesap picked in the fall of 1929. Wm. F. Noe, Amana, Iowa.



This is an "orchard school," conducted by Extension Horticulturist H. R. Niswonger, for the benefit of the apple growers in the Brushy Mountains of North Carolina.



This grape vine combines both utility and beauty. Besides adding much to the appearance of the home of Mrs. L. S. Davis, Lancaster, Pa., the vine, which is now nearly 20 years old, last year produced just 700 clusters of Concord grapes.



A Kansas subscriber, Mrs. Bessie Long of Thayer, visits the Potter ranch near McAllen, Texas, and says these Ponderosa lemons are considerably larger than can be grown in Kansas.

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